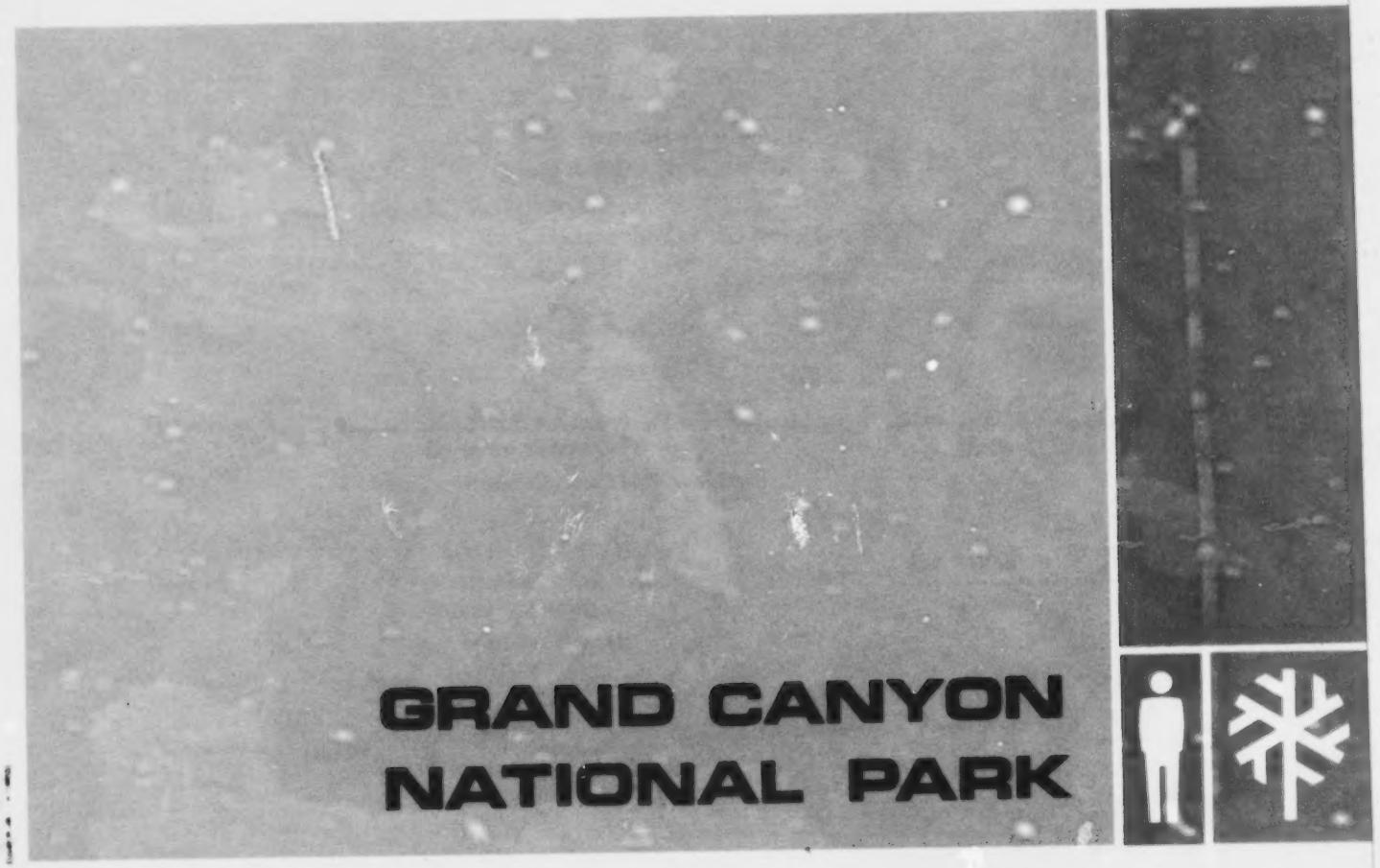
I 29
.2
:C 71/3

648

COLORADO RIVER MANAGEMENT PLAN

COLUMBIA UNIVERSITY
LIBRARIES
FEB 5 1990
U. S. DEPOSITORY
COPY

COLUMBIA UNIVERSITY
THE
LIBRARIES
CITY OF NEW YORK
DOCUMENTS
SERVICE CENTER



GRAND CANYON NATIONAL PARK

ARIZONA

COLORADO RIVER MANAGEMENT PLAN

GRAND CANYON NATIONAL PARK

ARIZONA

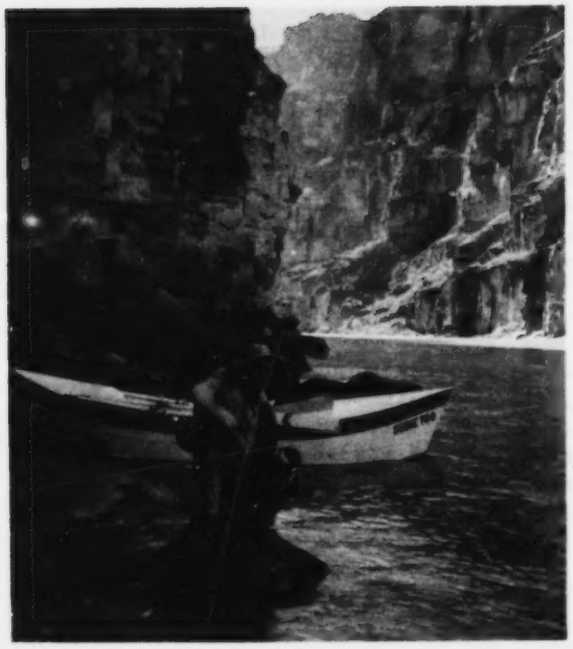
Prepared by
Grand Canyon National Park
National Park Service
U.S. Department of the Interior

Proposed: _____ 12-20-79
Superintendent, Grand Canyon National Park — Date

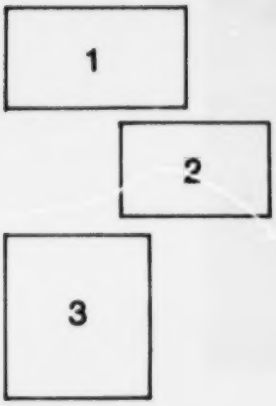
Recommended: Howard H. Chapman 12-20-79
Regional Director, Western Region — Date

Approval: _____ 12/20/79
Director, National Park Service — Date

Colorado River Management Plan



Grand Canyon National Park
Arizona



1 The **Edith**, a cataract boat named for Emery Kolb's daughter, was built in 1911 from plans furnished by Julius Stone, and was used by the Kolb brothers on their Grand Canyon photographic expedition.

2 The **Wen**, an improved cataract boat, was designed by Norman Nevills, who pioneered commercial river running in the Grand Canyon. Used until 1949 in twelve river trips, this boat travelled 4,500 miles on the Colorado River.

3 First named the **Susie Too**, this boat was renamed the **Music Temple** for the great vaulted alcove in Glen Canyon now beneath the waters of Lake Powell. Used for ten years after its launching in 1963, the **Music Temple** was replaced with larger, more efficient dories.

CONTENTS

		Page
I.	INTRODUCTION	1
	A. Background	1
	B. The Problems and the Issues	1
	C. Legislative and Planning Influences	6
II.	RESEARCH AND PUBLIC INVOLVEMENT	8
	A. The Colorado River Research Program	8
	B. Public Input	8
III.	THE PLAN	11
	A. Management Objectives	11
	B. Provisions of the Plan	12
	C. Wilderness Experience	12
IV.	SPECIFIC ELEMENTS OF THE PLAN	15
	A. Phase Out Motorized Craft	15
	B. Annual Use	15
	C. Allocation of Use for Commercial and Noncommercial Trips	20
	D. Commercial Permit Management	22
	E. Noncommercial Permit Management	24
	F. Launches from Diamond Creek	25
	G. Launches Between Lees Ferry and Diamond Creek	25
V.	ENVIRONMENTAL MANAGEMENT	26
	A. Fires	26
	B. Human Waste Disposal	26
	C. Trash, Litter, Soap	26
	D. Trails	26
	E. Historical and Archeological Resources	27
	F. Restricted Areas	28
	G. Monitoring and Continued Research	28
VI.	GENERAL GUIDELINES	30
	A. Plan Review and Revision	30
	B. Education of Commercial Guides, Noncommercial Trip Leaders, and Visitors	30
	C. Boating and Safety Requirements	31
	D. Guide and Trip Leader Standards	31
	E. Special Transportation Regulations	31
	F. Health and Sanitation	32

Page

VII. COORDINATION WITH OTHERS.....33

A. Bureau of Reclamation.....33
B. Glen Canyon National Recreation Area.....34
C. Navajo Indian Reservation.....34
D. Havasupai Indian Reservation.....34
E. Hualapai Indian Reservation.....35
F. Lake Mead National Recreation Area.....35
G. State of Arizona.....36

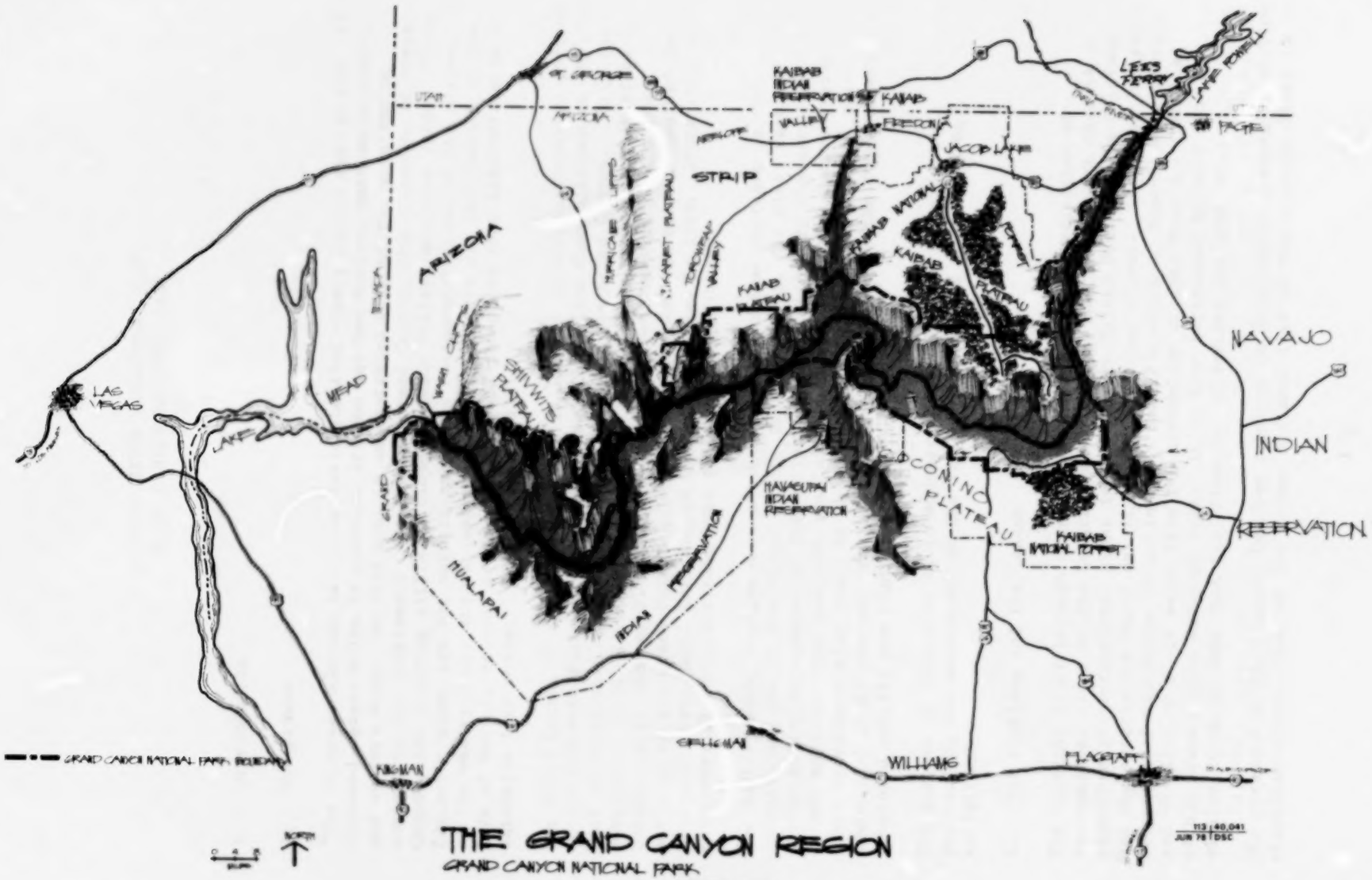
APPENDIX A - ANNUAL OPERATIONAL REQUIREMENTS

APPENDIX B - ORIENTATION TALKS

APPENDIX C - HEALTH AND SANITATION GUIDELINES

APPENDIX D - NONCOMMERCIAL RIVER TRIP AFFIDAVIT

APPENDIX E - GLOSSARY OF TERMS



THE GRAND CANYON REGION

GRAND CANYON NATIONAL PARK

READEX FICHE

COLORADO RIVER MANAGEMENT PLAN
GRAND CANYON NATIONAL PARK
1980

I. INTRODUCTION

A. Background

"The Colorado Plateau is a vast tableland that covers nearly one hundred fifty thousand square miles in northern Arizona and New Mexico, western Colorado, and eastern Utah. In this area is concentrated some of the outstanding scenery on the continent: the awesome Grand Canyon, the pinnacles of Bryce Canyon, the towering cliffs of Zion, Monument Valley, and Mesa Verde. These fantastic views are but variations on the fundamental theme of the plateau: as the weaker rocks are cut away, resistant remnants are left behind in the form of buttes, natural arches, cliffs, and pinnacles that alternate with extensive flat mesas." (Peter Farb, 1963)

The Grand Canyon of the Colorado River is located in the southwestern portion of the Colorado Plateau. The river runs 1,450 miles from Colorado to the Gulf of California including 277 miles through the Grand Canyon. Until the completion of the first of many dams in 1935, the Colorado River remained fundamentally unchanged. Lake Mead behind Hoover Dam flooded the lower sections of the Grand Canyon. The upper reaches of the canyon remained in a natural state until Glen Canyon Dam was completed in 1963. Since then the environmental responses have been rapid and significant.

The environmental changes were matched by a tremendous increase in the recreational use of the river. Prior to this period, the river required little active management by the National Park Service. By the early 1970's, it was apparent that research studies were needed so that a comprehensive river management plan could be developed. In 1973, commercial and non-commercial river use was frozen at existing levels until the research was completed and the new plan adopted.

The purpose of this plan is to address and resolve the major issues surrounding the management of the river resources and river-running activities.

B. The Problems and the Issues

The Colorado River through Grand Canyon is one of eight stretches of recreational river on the Colorado River system, and one of more than 44 stretches of recreational river in the western United States. The Colorado has characteristics which set it apart from other rivers. It is the longest recreational whitewater river in use. Some 240 miles of free-flowing river and 40 miles of slack water from the headwaters of Lake Mead are contained within Grand Canyon National Park. It is also surrounded by more than one million acres of land that qualifies for wilderness designation.

The presence of Glen Canyon Dam has resulted in drastically changed river flow characteristics. Most of the former sediment load of the Colorado River is

now being trapped behind the dam. Because of the dam, peak water flow during April, May and June (spring runoff) has been reduced to 25 percent of its former volume. In the same way, the impact of summer rainstorms is appreciably less than before the dam's construction. Also, daily water releases are controlled by a computer which responds to a complex program of electrical demand, water storage levels, irrigation needs, and flood control. Consequently, the river channel below the dam is not undergoing the natural deposition and scouring action that formerly took place. Former river terraces and beaches are being eroded and not renewed. Rocks are accumulating in the rapids creating increasingly hazardous conditions and possibly eventual impassable conditions.

The riparian (stream-side) community is rapidly changing. In some cases, native and non-native plants are establishing themselves on former open sandy beaches. At the same time pre-dam biotic communities are disappearing. Where remnants exist they must be actively protected.

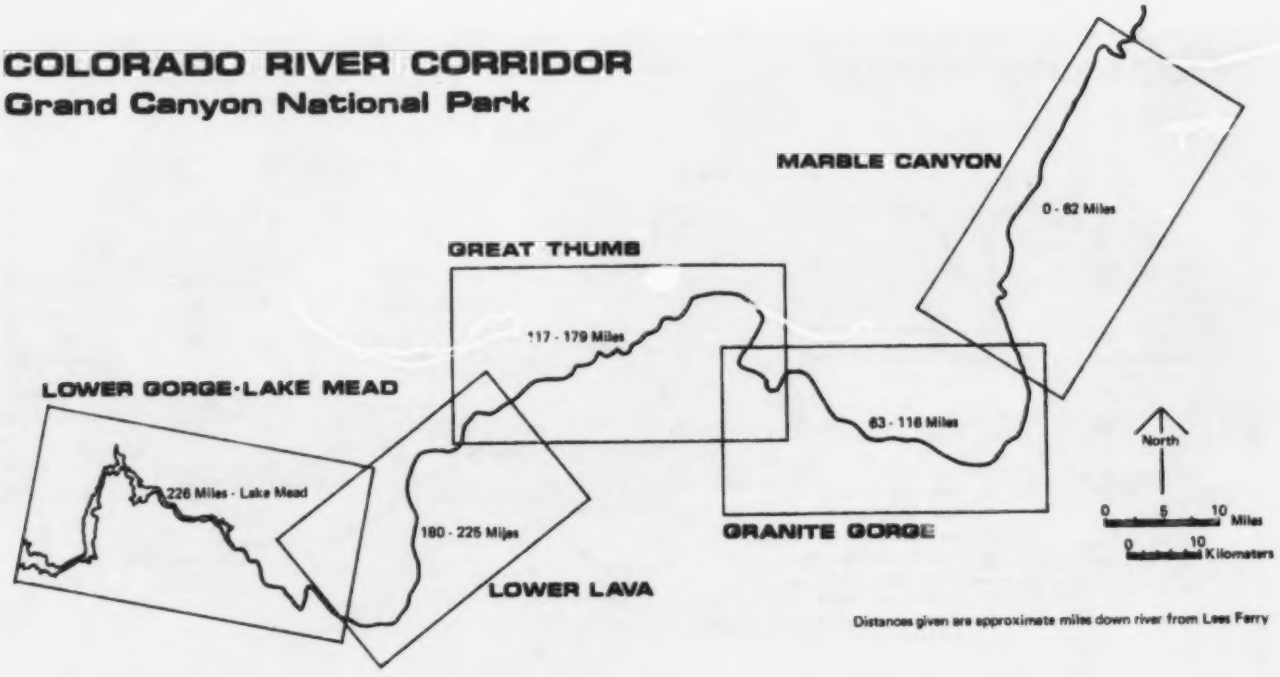
Recreational use along the Colorado River and the Grand Canyon is concentrated within the riparian zone and on beaches. The time and location of visitor use in the river corridor is uneven, causing high density levels at certain locations throughout the river corridor. Crowding and congestion at attraction sites have not only impacted resources but also the river-trip experience for many visitors. Popular sites include geologic features, side canyons, archeological and historical sites, caves, waterfalls, and unusual vegetation. The attraction sites are marked by multiple trails, trampled vegetation, and compacted soils.

There are about four hundred camping beaches within the river corridor, but the majority of river runners use fewer than one hundred of them. At each of the more desirable sites, 30 to 40 people camp almost every night during a 5- to 6-month season. This had resulted in the accumulation of human waste, charcoal, and other litter at these sites.

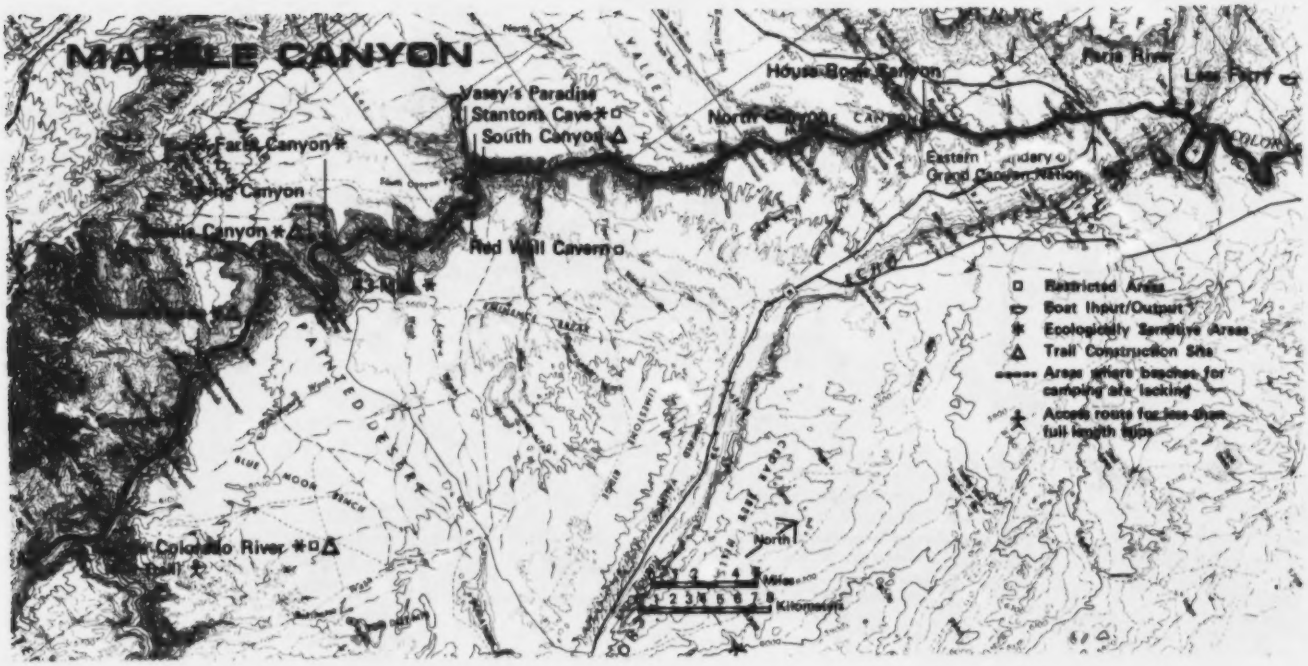
The above problems were a direct result of the increase in the recreational use of the area. In 1973, twenty-one commercial boating companies and non-commercial river runners carried more than 15 thousand people down the river, an increase of almost 700 percent in six years. Colorado River use for 1972 alone exceeded the 100-year period from 1870 through 1969.

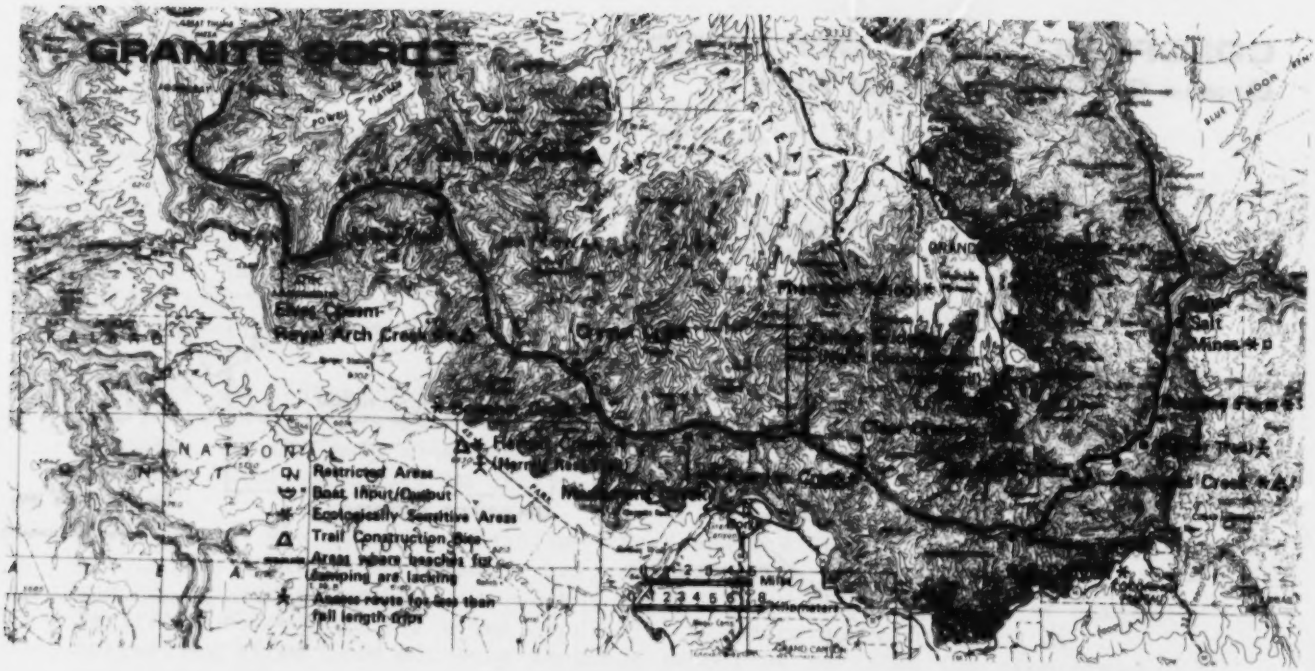
Due to the increase in recreational use and the resultant resource impact, the National Park Service placed a ceiling on the number of user days (one user day equals one passenger on the river for one day). As an interim measure, the commercial allotment for 1972 was set at 105,000 user days. Of these, only 88,135 were used, and in 1973, the commercial allotment was adjusted to 89,000 (not including the commercial crew members). This level has been maintained to the present time. The noncommercial river runners used about 7,600 user days in 1972, and that level has been maintained to the present time. This gives a total of 96,600 user days available for park visitors. An additional 21,000 user days are used by commercial crews, and approximately 1,000 user days are used by management and research personnel. The 96,600 user days translate to about 11,500 commercial and 450 to 500 noncommercial visitors, and 150 management and research personnel, on an annual basis.

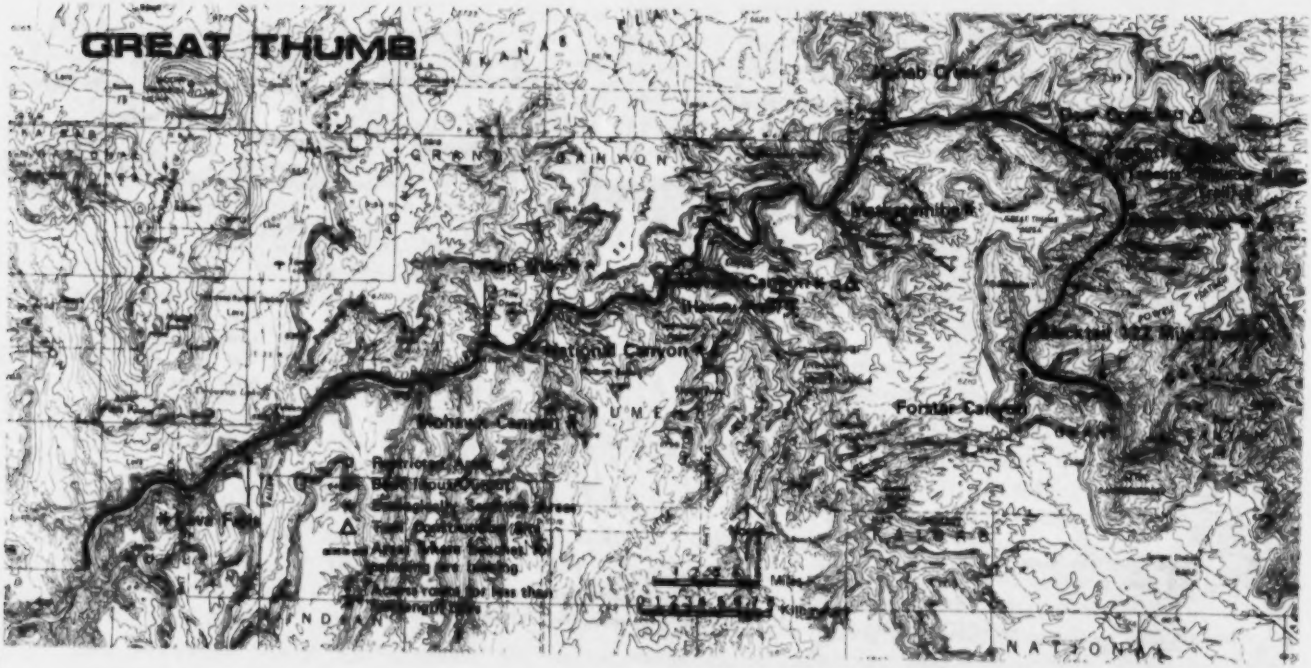
COLORADO RIVER CORRIDOR
Grand Canyon National Park

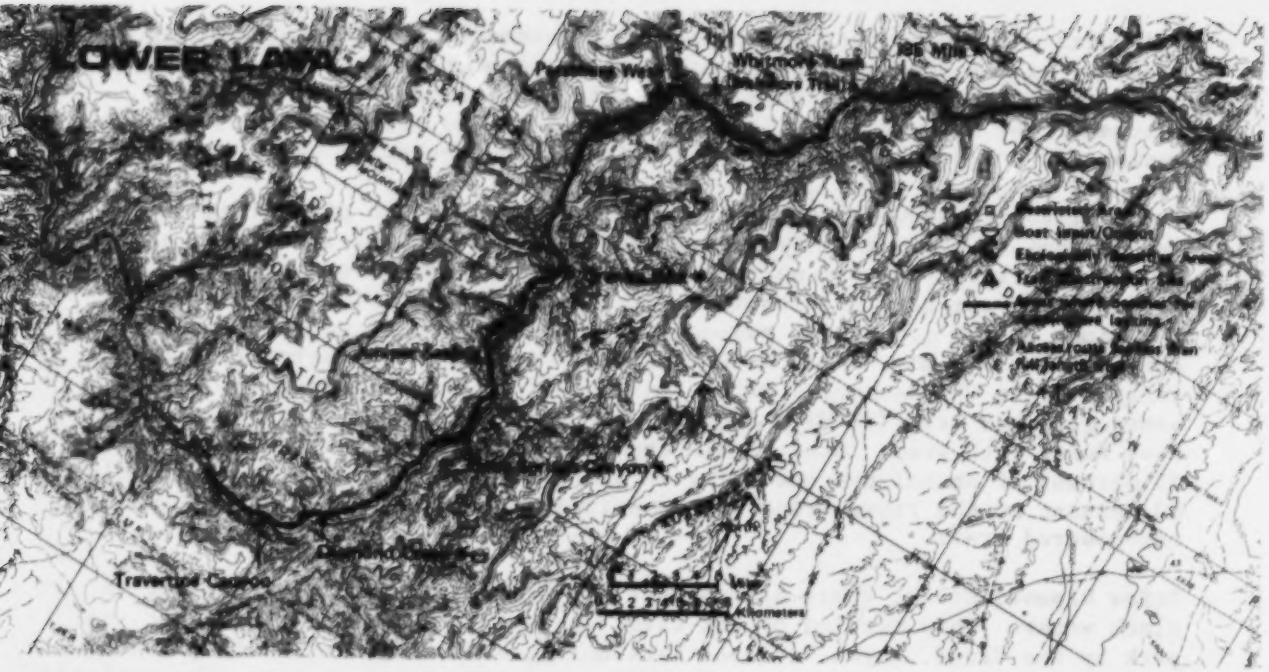


Distances given are approximate miles down river from Lees Ferry




GRANITE GORGE
Royal Arch Creek
Salt Mines
Restricted Areas
Boat Input/Output
Ecologically Sensitive Areas
Trail Construction Area
Areas where beaches for camping are lacking
Access route for less than full length dories


GREAT THUMB
Nankoweap Creek
Nankoweap Mesa
Saddle Canyon
National Canyon
Shinumo Canyon
Forster Canyon
Lava Falls
Restricted Areas
Boat Input/Output
Ecologically Sensitive Areas
Trail Construction Area
Areas where beaches for camping are lacking
Access route for less than full length dories


LOWER LAVA
Whitmore Wash
Redbank Wash
Travertine Canyon

LOWER GORGE-LAKE MEAD
Grand Canyon National Park
South Cove
Grapevine Wash
Quartermaster Canyon
Bridge Canyon

This plan uses the terms commercial and noncommercial while recognizing they may be a source of unintentional bias. Commercial boating companies (concessioners) provide a crew, equipment, and supplies for a set fee. Noncommercial boaters are skilled river runners who provide their own crew, equipment, and supplies and run the trip on a cost-sharing basis.

The available takeout points, the capacity of boats, and present park regulations on maximum daily travel also limit the number of users. A commercial river trip may not exceed a 40-mile per day average. Therefore, a minimum of six days are required for a Lees Ferry to Diamond Creek trip. A maximum of 150 commercial passengers plus one group of up to 15 noncommercial users may depart from Lees Ferry each day. Commercial boats carry four to 28 passengers with a maximum of 40 and an average of 21.4 passengers per trip (1978). Records show that from 80 to 940 people depart Lees Ferry each week. Most people depart on Monday and Tuesday with 75 percent of annual use occurring in June, July and August. Approximately 80 percent of the river trips use motorized watercraft and 20 percent use oar-powered craft.

Below Diamond Creek, there are no user day limits and much of the river is slack water. This section of the river has only recently been added to the park by the Grand Canyon National Park Enlargement Act, P.L. 93-620, of January 3, 1975. It has a history of use and management that is substantially different than the river above Diamond Creek. Only one commercial company operates on this Lower Gorge section of the canyon. An estimated 500 passengers took this trip in 1978. An additional estimated 6,000 passengers on trips from Lees Ferry traveled this section. An unknown number of motorboats travel upstream to Diamond Creek from Lake Mead.

Future management of the river corridor must be guided not only by visitor demands, environmental considerations, and public input, but also by the legislative purpose, policies, and goals established for Grand Canyon National Park.

C. Legislative and Planning Influences

Management of recreational boating on the Colorado River in Grand Canyon National Park is influenced directly by legislative mandates. The most significant is the National Park Service Act of 1916 which provides:

> "...The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations, hereinafter specified, by such means and measures as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired."

An Act of Congress established Grand Canyon National Park in 1919 but actually included only a portion of the canyon and river corridor. This was modified by the Grand Canyon Enlargement Act of 1975. This Act added Marble Canyon National Monument, Grand Canyon National Monument, and portions of Lake

Mead National Recreation Area to Grand Canyon National Park. All of the Colorado River corridor within Grand Canyon, except adjacent Indian tribal lands on the Navajo and Hualapai Reservations, is now within the national park.

The Grand Canyon National Park Master Plan contains statements which directly influence management of the Colorado River.

> "...preservation of the Grand Canyon natural environment is the fundamental requirement for its continued use and enjoyment as an unimpaired natural area. Park management therefore looks first to the preservation and management of the natural resources of the park. The management concept is the preservation of total environments, as contrasted with the protection of only a single feature or species."

II. RESEARCH AND PUBLIC INVOLVEMENT

A. The Colorado River Research Program

To achieve the mandates in the enabling legislation of the National Park Service and master plan objectives for Grand Canyon National Park, data on the rates and magnitudes of environmental change were needed. Since the riparian zone of the Colorado River did not represent a significant management problem prior to the completion of Glen Canyon Dam, there was little encouragement or support for scientific investigations, and little baseline information was gathered. Decisions concerning river management were needed in the late 1960's and early 1970's, but the existing information base was inadequate. Consequently, in 1973, the National Park Service initiated a comprehensive research program including 29 studies. They addressed the ecology of the riparian zone, visitor interaction with plants and wildlife, social concerns, campsites, waste disposal, recreational carrying capacity, analysis of the economics of river operations, and visitor preference for types of trips.

The three years of research demonstrated that the presence of Glen Canyon Dam resulted in dramatic environmental changes within the river corridor. The research also showed that physical and biological changes are occurring as a result of visitor use patterns and activities and not as a direct function of visitor use levels. Based upon this research, the following measures must be taken to reduce or eliminate these impacts:

- -the removal of solid human waste from the river corridor
- -the replacement of multiple trails with single trails leading to points of interest in the river corridor
- -the reduction of visitor congestion and better dispersal of visitors at points of interest and camping sites
- -the establishment of a National Park Service sponsored education and licensing program to qualify commercial guides and noncommercial river trip leaders

In addition, motorized traffic on the Colorado River was found to be clearly inconsistent with the guidelines provided for management of park resources as outlined in the NPS Grand Canyon National Park Master Plan. Therefore, use of motorized craft will be eliminated.

B. Public Input

Public hearings on the preliminary wilderness proposal for lands within Grand Canyon National Park began in May 1971. The river corridor was an important issue during the hearings and in the 1975 wilderness workshops, as well as in the letters of comment responding to the draft environmental statement for the proposed wilderness plan. Over this 5-year period, there was not significant change in public sentiment. The public strongly favored the inclusion of the river and the surrounding land into the Wilderness Preservation System. They also favored elimination of motorized watercraft, control of aircraft noise, and preservation of the Grand Canyon's natural ecosystems.

Six river management workshops were held in March 1976, in the following cities: Phoenix, Arizona; Grand Canyon, Arizona; Los Angeles, California; San Francisco, California; Salt Lake City, Utah; and Denver, Colorado. The workshops were attended by 365 participants representing over 100 clubs, organizations, and individuals. About 27 percent each came from Arizona, California, and Colorado; 14 percent from Utah; and 5 percent from 8 other states. Ages of the participants ranged from 12 to 69 years, with 66 percent between 20 and 34 years.

The following is a list of issues raised at the workshops:

-allocation of use between commercial, noncommercial and management

-protection of the environment

-elimination or retention of motors

-permit system for river runners

-wilderness designation for the river

-disposal of human waste

-total visitor use of the river

-commercial use of the river

-noncommercial use of the river

-operating requirements for river runners

-regulations for river runners

-dams on the Colorado River

-education for river runners

-research regarding the river corridor

Following the release of the Draft Colorado River Management Plan in 1978, seven public meetings were held and over 90 days were allowed for review and comment. Public interest ran high. Proposals in the plan were well publicized by environmental and recreational groups, commercial outfitters, and various individuals. In all, 2,743 responses were received by the May 1, 1978, deadline. A total of 221 persons spoke at one or more of the seven public meetings and 738 signatures were received on petitions.

The responses received have been reviewed and analyzed. A summary of these responses was incorporated in the final environmental statement (FES) for the Colorado River Management Plan.

The final environmental statement was made available for public review on August 3, 1979. The review period for the final environmental statement

for the Colorado River Management Plan was between August 3 and October 2, 1979. During this period, 1,712 people offered review comments on the plan. Overall, 44 topics of concern were identified in the analysis of the response. The majority of the input concerned the phaseout of motorized watercraft on the Colorado River between Lees Ferry and Separation Canyon.

Issues	Number of Responses	Percent of Total
For proposed phaseout of motors	911	54
Against proposed phaseout of motors	774	46

As with the comments on the draft plan, the major comments mentioned supporting the motor trips included: (a) oar trips are too long, (b) too expensive, (c) too strenuous, and (d) are unsafe. Comments opposed to motors included: (a) motors and wilderness are not compatible, (b) eliminating motors would eliminate noxious fumes, (c) the canyon is too commercialized, and (d) the phaseout of motors was too long.

In addition, 232 letters were received between October 3 and November 1. Two-hundred and thirteen supported the plan and 19 were against the plan or the phaseout of motors.

The subject of second greatest concern was the allocation between commercial and noncommercial (private) trips. The breakdown of these comments and response on other issues is as follows:

Issues	Number of Times Mentioned
General support of total plan	526
For allocation proposals	74
For commercial/noncommercial comprehensive lottery	55
For environmental protection measures	148
Against environmental protection measures	2
For status quo launch schedule	52

Though not of great volume, highly detailed information was given on the economic concerns of the concessioners during the conversion from motor to rowing operations. Also detailed were concerns over scheduling and booking of commercial passengers on the river. A list of these concerns is as follows:

- -Stereotyping of commercial trips if all companies must run a 25-passenger trip to fill their allocation
- -Some provision for pre-scheduling make-up trips or other means of dealing with cancellations
- -Several of the companies with small allocations were interested in receiving more user days/passenger launches to increase the economic bases of their companies
- -Allowing an increase in trip size to more nearly meet the capacities of boats currently used on the river

III. THE PLAN

The plan encompasses the river corridor from Lees Ferry to Grand Wash Cliffs, including beaches, points of interest and hiking routes. Although management of visitor use and activites is a major portion of the plan, protection of natural and cultural resources is equally important and also addressed. The plan also includes standards and requirements for boat types and capacities, river guides, safety equipment and procedures, and public health. The annual Operational Requirements are found in Appendix A.

A. Management Objectives

To comply with Congressional mandates, National Park Service management policies, master plan objectives, public input, and research findings, the following objectives were developed for the management of the Colorado River:

-perpetuate a wilderness river-running experience in which:
  - .the natural sounds and silence of the canyon can be experienced
  - .relaxed conversation is possible
  - .the river is experienced on its own terms

-phase out the use of motorized watercraft between Lees Ferry and Separation Canyon

-establish a total human use capacity and associated limitations on use of the river

-allocate use equitably between commercial and noncommercial users

-provide commercially guided trips

-establish an equitable and efficient method of assigning noncommerical permits

-protect and preserve the river corridor environment within the National Park Service's ability to do so considering uncontrollable effects of Glen Canyon Dam

-reduce high visitor density and congestion at points of interest

-maintain water quality in side streams and in the river

-adhere to all public health and safety standards

-increase interpretive services on river trips

-increase education and information programs for all river runners regarding protection and use of the river environment

-establish monitoring programs to assess resource conditions and visitor experiences

-recommend inclusion of the Colorado River in the Wilderness Preservation System

B. Provisions of the Plan

Through the provisions of the plan, the management objectives outlined above will be met and, in addition, the plan will allow for the following:

-An opportunity for visitors to select noncommercial or commercial river trips

-A reasonable allocation of use for commercial and noncommercial river trips

-People of most ages and abilities and those with physical handicaps to take river trips

-Less expensive, partial river trips that enter or exit at various points along the river corridor

-Mule and helicopter transportation for those unable to hike into or out of the canyon at the beginning or end of a partial trip

-Continued commerical operator profitability by increased user day allocations and offering partial river trips, plus spring and fall trips

-Continued benefits for the regional economy due to increased numbers of people taking river trips and more river guides working for longer periods of time

-Control of use patterns to reduce crowding by distributing use over the entire year and more evenly throughout the week, thereby minimizing impacts

-Continued safety requirements (Current records show no significant difference in accidents between motor and non-motorized craft.)

-Increased noncommerical trips to accommodate increased demand

-Revised noncommerical permit processing to provide a more equitable procedure of assigning trips

C. Wilderness Experience

The objectives of a quality wilderness river-running experience is more fully explained by the following definition and philosophy of wilderness, an explanation of its relationship to other existing park planning documents, and an assessment of expected results.

1. Definition

As defined by the Wilderness Act (P.L. 88-577), "A wilderness, ... is ... an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean...an area of undeveloped Federal

land retaining its primeval character and influence, without permanent improvements or human inhabitation, which is protected and managed so as to preserve its natural conditions and which: (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

2. Philosophy

The idea of wilderness has been prominent in the formation of the American character and in the early image of America formed by other peoples. Once defined as a threatening place of uncontrolled danger, wilderness has in our time come to be associated with opportunity for respite from an overly complex civilization. The simple existence of wilderness is a psychological boon to many. While escape can represent the main component of the wilderness idea for some, physical and mental challenge and renewal of a sense of wonder are also central to the idea.

In a nation whose stock of wilderness is dwindling, the Grand Canyon of the Colorado River stands out as a prime example of wilderness preserved. But any place ceases to be a wilderness as human use increases and natural resources are affected. Wilderness, which is perhaps as much a state of mind as an actual place, is affected by the user's preception of its generally untouched quality and of the naturalness of its plant and animal life as well as of how crowded it appears. This plan seeks to permit human use of the Colorado River corridor in Grand Canyon without sacrificing the aspects of the Grand Canyon environment on which the idea of wilderness depends.

It is recognized that the act of managing is inconsistent with the strictest definitions of wilderness as a place uncontrolled by man. But it is also recognized that under circumstances of uncontrolled and growing use, wilderness may soon cease to exist.

The Grand Canyon provides an exceptional setting for an experience of wilderness. Its rugged topography is a showcase for natural processes of sedimentation and erosion, for desert wildlife and vegetation, for true isolation in a startling setting of immense geologic time, and for feeling the power and life of the river's flow. These things as well as the roar of each rapid, the sight of the clear night sky, and the songs of canyon wrens along the shore are all part of the Grand Canyon wilderness experience which this plan seeks to preserve. Rather that representing an elitist choice among the possible means of enjoying Grand Canyon, this is a plan to preserve and make available the fullness of the unique experience which the Colorado River through Grand Canyon offers to the river runner. Among other provisions of the plan, the elimination of motor use will enhance the experience of wilderness without appreciably changing the demographic characteristics of river users or their total number.

3. Relationship to Planning Documents

Several Grand Canyon National Park plans address the question of the river's role in an experience of Grand Canyon as wilderness.

The Final Master Plan for Grand Canyon National Park (August 1976), in discussing the river, states "that the goal for management of the Colorado River in Grand Canyon will be to perpetuate the wilderness river-running experience, and to attempt to mitigate the influences of man's manipulation of the river." The plan further states that the park's management should "limit mechanized access below the rim to emergency and management use."

The Preliminary Wilderness Proposal for Grand Canyon National Park (July 1976) states that the use of motorized boats "is inconsistent with the wilderness criteria of providing outstanding opportunities for solitude and for primitive and unconfined type of recreation." It suggests that the decision on the river's inclusion within the Grand Canyon Wilderness be deferred until completion of the river management plan.

4. Expected Results

This plan will allow river runners to experience wilderness in the Grand Canyon within the limits of acceptable impact on its resources. It will perpetuate a wilderness river-running experience in which:

-the natural sounds, silence, smells, and sights of the canyon predominate over those which are man-caused

-the flow and power of the river are more fully experienced

-wildlife and vegetation in the riparian zone and side canyons are viewed in a state as little affected as possible by people, given the existence of dams on the Colorado River

-the effect of the river runner's presence is temporary rather than long lasting

IV. SPECIFIC ELEMENTS OF THE PLAN

A. Phase Out Motorized Craft

Use of motorized watercraft between Lees Ferry and Separation Canyon will be phased out over a 5-year period. This will achieve the objective of this plan to make available the high quality wilderness river-running experience which is inherently offered by the unique nature of the Colorado River through the Grand Canyon. This is also the objective of the Grand Canyon National Park Master Plan for the Colorado River Corridor, and corresponds with the park wilderness proposal. The decision is also based on the extensive Colorado River Research project for the Grand Canyon and considers public input from the two series of public meetings on river management. Motorized watercraft are allowed below Separation Canyon and on to Lake Mead. The timetable and method for phasing out motorized watercraft is outlined in Table 1. Winter trips will be oar-powered.

Table 1. TIMETABLE FOR REMOVAL OF MOTORS

	April	May	June	July	August	September
1980	Oars	Motors/ Oars	Motors/ Oars	Motors/ Oars	Motors/ Oars	Motors Oars
1981	Oars	Motors/ Oars	Motors/ Oars	Motors/ Oars	Motors/ Oars	Oars
1982	Oars	Motors/ Oars	Motors/ Oars	Motors/ Oars	Oars	Oars
1983	Oars	Motors/ Oars	Motors/ Oars	Motors/ Oars	Oars	Oars
1984	Oars	Motors/ Oars	Motors/ Oars	Motors/ Oars	Oars	Oars
1985	Oars	Oars	Oars	Oars	Oars	Oars

B. Annual Use

Total annual use is increased both in numbers of people and user days. This is accomplished primarily by lengthening the summer season and allowing winter use.

A review of the river-runner contact research indicates that the number of contacts between river trips is the most important single factor leading to crowding and congestion and resulting negative impacts on the environment and trip experience. Therefore, it is essential to limit the number of groups on the river at any one time by setting a maximum daily number of trips or groups allowed to launch. The summer season is lengthened from about 4 to 6 months to allow use during times when little or no use is currently being made.

Also summer use is redistributed to reduce crowding in peak midsummer months. Individual group size is important in enhancing the quality of the wilderness river-runnin experience. Therefore, group sizes for commercial and noncommercial trips are established. Trip length has some bearing on trip experience as well as use levels. Minimum trip length is set to enhance trip quality and maximum trip length is set to maintain reasonable overall use levels. Average trip lengths used in this plan for commercial and non-commercial trips are estimates based on past experience and judgments as to what is likely to happen.

User days are not the key limiting factor in this plan as they have been in the past. Rather, the number of daily launches from Lees Ferry and trip size are the key factors in limits and distribution of use. A maximum annual total user day limit is established in this plan but is much higher than expected levels. Expected user day levels are based on average trip lengths. Two separate use seasons are established for this plan. The summer season will begin on April 16th and end on October 15th. The winter season will begin October 16th and end on April 15th.

1. Summer Season (April 16 through October 15)

Total use and allocation is based on number of trip launches and group sizes. For the summer season the number of commercial trips authorized will be 404. The base number of trips will be two commercial trip launches per day, or 14 per week. However, in order to allow for an increased allocation for small concessioners, two extra trips will be allowed each week, thereby modifying the daily launch capacity to three trips for two days of each week. Also, as the launch schedule for each year is established, there may be some adjustment in daily launch capacity in order to provide flexibility to achieve an even distribution of weekly launches. Commercial trip group size will vary from about 15 to 36 in order to coincide with boat capacities and logistical capacities of individual concessioners as well as providing for a variety of trip offerings for the visitor. Total number of people launching on commercial trips during the summer season will be approximately 10,550. Noncommercial use during the summer season will be based on a maximum of one trip launched each day with a maximum of 15 people or 2745 people. The other use parameters for the summer season are outlined in Table 2.

2. Winter Season (October 16 through April 15)

Winter season use is restricted to no more than three trips and an average of 60 people per week. This will keep use at a level low enough to allow the natural cleansing of beaches to continue and provide for a wilderness river trip where the likelihood of encountering other trips is remote. It has been well documented by researchers (Carothers, et al. 1976) that heavily used beaches are significantly cleaner when visited in the spring than when last visited in the fall. However, little is known about the details of this cleansing process. Until the natural processes contributing to this cleansing are investigated, winter use will be kept at a relatively low level.

Table 2. CURRENT AND NEW USE LIMITS
(During the 5-year phaseout)

COMMERCIAl	1979 Limits		This Plan	
	Summer	Winter	Summer	Winter
Average Miles Per Day	40	40	40	40
Minimum trip length (days)	6	6	6	6
Maximum trip length (days)	No Limit	No Limit	18	21
Average trip length (days)	9	9	10	10
Passengers per day (max)	150	150	100	36
Launches per day	No Limit	No Limit	2-3	1
Launches per week	No Limit	No Limit	16	up to 3
Passengers per group	40	40	15-36	25
Number of people	11,792	*	10,550	1000
Number of trips	497	*	404	39
Projected user days	89,000	*	105,500	10,000
Maximum user days	89,000	*	164,700	20,475
NONCOMMERCIAL				
Minimum trip length	No Limit	No Limit	No Limit	No Limit
Maximum trip length (days)	No Limit	No Limit	18	21
Average trip length (days)	17	17	16	18
Launches per day	1	1	1	1
Launches per week	**	**	7	7
Participants per group	15	15	15	15
Number of people	473	***	2,745	585
Number of trips	43	***	183	39
Projected user days	7,600	***	43,920	10,530
Maximum user days	7,600	***	49,410	12,285

* The previous number of people, trips, and user days for commercial river running was allocated annually with no distinction as to season. Therefore, winter use is included in the summer use figures.

** Launches per week was limited by the number of people that could launch each day, and the annual limit.

*** The previous annual noncommercial use allocation of 7,600 user days has worked out to about 40± trips each year. No more than 1 noncommercial trip could launch each day. Theoretically, 7 trips could launch each week. This rarely occurred because of the overriding limit of about 40 trips each year, based on the annual user day limit.

The previous number of people, trips, and user days for noncommerical river trips was allocated annually with no distinction as to season of use. Some winter use is included in the 1978 summer use figures.

It is important to understand that maximum user day levels will not be allowed to happen. In order for maximum user day levels to occur, every trip would have to be at maximum group size and trip length. It is very unlikely that this would occur within the framework of the use limits outlined in Table 2. However, additional limits will be placed in effect if use levels at any time appear to be escalating beyond an acceptable level. Acceptable level of use at this time is that amount shown in Table 2 as the average user day level. The average user day level is based on the total number of people allowed in a given season multiplied by average trip length. The river monitoring studies will provide data to assist management in adjusting future use levels.

There was substantive input to the FES regarding the need for an economic base for small concessioners and variable group sizes among the concessioners. The plan is modified to recognize these latter two points, and in doing so the base number of trips must be increased. The original summer season base outlined in FES was 366 trips plus approximately 52 makeup trips, or a total of 418. The plan now provides for 404 trips during the summer season leaving no reasonable room for makeup trips. There will be no provision for commercial makeup trips, since the total number of trips are increased to accommodate an economic base and variable group size. However, concessioners will be allowed to overbook each trip by from 5 to 10 percent during the phaseout in order to compensate for cancellations and/or no shows.

The number of commercial passengers allowed to launch from Lees Ferry is 10,550 during the summer season and 1,000 during the winter season. However, the number of individual passengers is expected to increase by 3,000 or more through partial river trips. Concessioners are encouraged to provide partial Canyon trips as they have done in the past. Table 3 shows the number of people who took partial trips with concessioners in 1978.

Table 3. PARTIAL TRIPS TAKEN WITH CONCESSIONERS IN 1978

	Passengers In	Passengers Out
Lees Ferry	11,335	
Phantom Ranch	1,271	1,251
Little Colorado	10	1
Hance	17	0
Tapeats	0	13
Havasu	89	56
Lava Falls	419	3,097
Whitmore Wash	109	664

Counting those who joined river trips below Lees Ferry and those who took out above Diamond Creek, there were almost 7,000 people who took partial river trips in 1978. Those people who started at Lees Ferry and took out at Lava Falls by helicopter are considered by some to have taken full river trips. Technically, they ran the river only 2/3 of its length through the canyon. Without counting these 3,097 people who took out at Lava Falls, there were 3,900 people who took partial river trips in 1978. There were 3,481 people who either hiked into or out of the canyon in connection with their partial river trip.

The primary location for passenger exchange is at Phantom Ranch (Mile 87) using the Kaibab and Bright Angel Trails for access. Other access trails are available and can be used but are generally more difficult because of trail conditions and trailhead access. Exchanges at Lava Falls involve a helicopter ride into or out of the canyon to an airstrip just outside the park boundary. Table 4 shows the most commonly used passenger exchange location and the expected level of use for each one.

Table 4. LAUNCH, TAKEOUT AND EXCHANGE POINTS

	Name	Location	Launch	Takeout	Exchange
1.	Lees Ferry	Mile 0	M	-	-
2.	Little Colorado River	Mile 61.5	-	-	X
3.	Tanner Trail	Mile 69	-	-	X
4.	Hance Trail	Mile 76.5	-	-	X
5.	Phantom Ranch	Mile 87	X	X	M
6.	Hermit Trail	Mile 95	-	-	X
7.	Boucher Trail	Mile 96.5	-	-	X
8.	Bass Trail	Mile 108	-	-	X
9.	Tapeats Creek	Mile 134	-	-	X
10.	Havasu Creek	Mile 157	-	-	X
11.	Lava Falls	Mile 179	-	M	X
12.	Whitmore Wash	Mile 188	X	X	M
13.	Diamond Creek	Mile 225.5	M	M	-
14.	Pierce Ferry	Mile 280	-	M	-

M shows a major use area and X a minor use area.
Launch is where boats and/or passengers start a river trip.

Takeout is where boats and/or passengers leave a river trip.
Exchange is where passengers board and/or leave a river trip.

In addition to the noncommercial trip participants and commercial passengers outlined in Table 2, there are commercial crew members, National Park Service patrol, administrative, and research trip personnel. The number of commercial crew on each trip varies from company to company and trip to trip depending on type of boats used and the type of trip offered. Generally, the more specialized trips require more crew. Crew members are not counted against concessioner allocations and are in addition to the basic number of passengers per group. National Park Service patrol and administrative trips are not under a use limit but will normally be approximately 12 in the summer season and 6 during winter. These trips will usually consist of small groups of 10 or less people. There will generally be less than 10 research trips each year. Research trips are usually very small groups of about 10 people. Table 5 (below) provides information on the extent of this use and completes the total use picture.

Table 5. COMMERCIAL CREW, NPS PATROL, ADMINISTRATIVE, AND RESEARCH TRIPS

	1978		This Plan	
	No. of People	User Days	No. of People	User Days
Commercial Crew	2,626	24,105	3,000	30,000
NPS Patrol & Admin.	100	800	180	2,500
Research	50	700	50	700

Total use including commercial passengers, commercial crew, noncommercial trip participants, National Park Service patrol, administrative, and research trips, in terms of user days based on projected trip lengths is 203,160. Total maximum use (which will probably not occur due to restrictions on maximum trip length and maximum group size on every trip) would be 280,070 user days.

C. Allocation of Use for Commercial and Noncommercial Trips

Commercial companies currently provide river trips for those without the expertise, time, or equipment to run the Colorado River themselves. A commercial trip, then, is defined as one where services are afforded to the visitor for a fee. These services include operating the boats, preparing meals and setting up camp, as well as providing educational opportunities to learn more about the area. These are currently both motorized and non-motorized trips. Passengers on either type of trip do not operate the boats; therefore, an oar-powered commercial trip is no more strenuous than a motorized commercial trip.

Noncommercial trips, on the other hand, consist of a private group organized to run the river and are participatory in nature. The group members share the responsibilities and cost of operating the boats, along with meals and camp

duties. No fees are paid for guide services or collected above the actual cost of the trip. School and other non-profit groups may qualify for these trips (see Private Trip Affidavit, Appendix D).

The allocation between commercial and noncommercial use outlined in Table 6 is based on the best available information on the demand for commercial and noncommercial trips. Figures on potential passengers turned away by commercial concessioners may count individuals more than once as they are turned away by successive companies. When certain dates are full, some companies issue brochures indicating this fact. There is no way to count potential passengers turned away in this manner. Figures on the demand for noncommercial trips are complicated by duplicate applications, false applications, failure of interested but discouraged river runners to apply, etc.

The allocation ratio is, because of the above factors, a best estimate based on experience and on interpretation of the available data. This ratio will be reviewed and adjusted as more reliable information becomes available.

Allocation ratio for commercial and noncommercial river running varies depending upon whether one is considering the number of trips, number of people, or user days.

Table 6. COMPARISON OF COMMERCIAL AND NONCOMMERCIAL USE

	1979				This Plan			
	Commercial		Noncommercial		Commercial		Noncommercial	
	No.	%	No.	%	No.	%	No.	%
Participants	11,792	96.6	473	3.4	11,550	78	3,330	22
Number of Trips	497	92.0	43	8.0	443	67	222	33
Projected User Days	89,000	92.0	7,600	8.0	115,500	69	54,450	31

User day figures are based on projected 10-day average trip lengths for commercial and 16 days for noncommercial trips. These projected trip lengths are based on five years of actual experience in observing trip lengths and the expectation that during the phaseout of motor trips the average trip length will be lower. As the number of rowing trips increases, the average trip length is expected to increase. As this occurs, it may be necessary to reduce group size for commercial trips in order to keep overall user days within acceptable levels.

No maximum limit existed for either commercial or noncommercial trips under the previous management situation. The minimum trip length for commercial

length was allowed to fluctuate at the discretion of the concessioner and noncommercial trip participants.

The plan provides for significant increases in noncommercial participants, number of trips and user days. There will be little change in the number of commercial trip passengers and some decrease in the number of trips but a considerable increase in commercial user days. The percentage changes are outlined in Table 7.

Table 7. A COMPARISON OF COMMERCIAL AND NONCOMMERCIAL USE

	Participants	Trip Numbers	Projected User Days
Commercial	10.5% decrease	3.0% decrease	130% increase
Noncommercial	843% increase	600% increase	718% increase

Information based on verbal and written reports indicates that non-commercial river runners are less likely to comply with operating regulations. During patrol trips in 1977, 1978, and 1979, National Park Service Rangers recorded proportionately more incidents of noncompliance with regulations on the part of noncommercial river runners than commercial. Noncommercial use will be phased in to allow time to implement the information and education programs for these river runners. Half of the noncommercial allocation will be allowed and monitored in 1980 and 1981. The remainder of noncommercial user days will be granted in 1982, if monitoring indicates that resource impacts are within acceptable limits by the end of the 1981 summer season.

D. Commercial Permit Management

It is essential that concessioner-guided river trips be available to that segment of the public who do not have the expertise, equipment, or interest to run the river on their own. River-running concession permits will be granted for a 5-year period beginning in 1980 and ending in 1984. When granting permits, preference will be given to those companies who have provided satisfactory service over the term of their existing permits. This is required by the Concession Policy Act of October 9, 1965 (P.L. 89-249; 79, Stat. 969; 16 U.S.C. 20):

> "SECT. 5. The Secretary shall encourage continuity of operation and facilities and service by giving preference in the renewal of contracts or permits and in the negotiation of new contracts or permits to the concessioners who have performed their obligations under prior contracts or permits to the satisfaction of the Secretary. To this end, the Secretary, at any time in his discretion, may extend or renew a contract or permit, or may grant a new contract or permit to the same concessioner upon the termination or surrender before expiration of a prior contract or permit. Before doing so, however, and before granting extensions, renewals or new contracts persuant to the last sentence of section 4 of this Act, the Secretary shall give

and before granting extensions, renewals or new contracts persuant to the last sentence of section 4 of this Act, the Secretary shall give reasonable public notice of his intention to do so and shall consider and evaluate all proposals received as a result thereof."

As indicated in the Concession Policy Act, public notice will be given of the intention to renew permits. Anyone who so desires may submit a proposal for a permit with the assurance that it will be evaluated.

Table 8 shows the proposed method of allocating use among concessioners. This is based on historical user day allocations. Each concessioner was allocated a certain number of user days in 1973, which amounts to a specific percentage of the total 89,000 user days. That percentage multiplied by the total number of people to be allowed under this plan results in each respective concessioner's new allocation. However, each of the concessioners whose new allocations would be less than 400 people using this formula will be granted an additional 100 people to their allocation in order to provide them with an economic base of operations. This adds 1,500 more people to the total number to be taken through the canyon by concessioners. By adjusting this group size and eliminating makeup trips this can be an accomplished without increasing overall number of trips.

Table 8. EXAMPLE OF CONCESSIONER ALLOCATIONS -- SUMMER SEASON

Concessioner	1978 Number of User Day Allocations	Trip Percent of User Days	Passengers This Plan	Launches This Plan
Company A	10,000	11.2%	1,025	41
Company B	8,500	9.6%	875	35
Company C	7,000	7.9%	650	26
Company D	4,000	4.5%	400	16
Company E	2,500	2.8%	350*	10
Company F	1,500	1.7%	250*	6
Company G	1,000	1.1%	200*	4
etc.	etc.	etc.	etc.	etc.
Totals	89,000	100.0%	10,550	404

* This includes the 100 additional people added to the base allocation to provide an economic base to these smaller companies.

Actual river companies were not used in the example of Table 8 to avoid charges of preselection bias. "Etc." was placed at the bottom of each column to indicate that there would likely be more than seven companies. In fact, 21 companies for full-canyon trips, plus the Hualapai Tribe for Lower Gorge trips, is the maximum number that will be granted permits under this plan. Based on the past five years of operation, the National Park Service believes that from 15 to 18 companies would be preferable. This would maintain the variety of trip offerings desired and yet provide an opportunity for those existing small companies to increase their operations to the point of being

more economically viable. With fewer than 15 companies, the variety of services offered would decrease significantly. Concessioners will be limited to a maximum allocation of 1,025 people per company.

Each concessioner will be given the opportunity for at least one winter trip. The remaining trips will be available on a first-come, first-served basis. If there are any concessioners who do not want a winter trip, their trip will be made available to other concessioners on a first-come, first-served basis. There are 39 winter trips available to concessioners with group size of 25 passengers per trip and up to 21-day trip lengths.

Commercial launch schedules will be established by February for the next year's boating season. An example is February 1980 for the 1981 summer boating season and the 81-82 winter season. Concessioners will submit proposed launch schedules to the National Park Service by January 31 and the National Park Service will prepare a calendar showing proposed schedules. The National Park Service will schedule a meeting in mid-February to be attended by all concessioners where the final schedule will be established. If changes in the schedule are necessary after that time, the National Park Service will work out needed modifications with the companies involved. Any company who sends launch schedules in late will be assigned the closest launch dates available to those it proposes.

If a company ceases operation, its use allocation will be reallocated at the discretion of the National Park Service. The National Park Service reserves the right to adjust or reallocate use allocation. Concession permits will be assigned through a bid procedure, considering the proposals submitted by all applicants. River-running concession permits cannot be transferred without prior written approval from the National Park Service.

Concessioners will be charged a franchise fee based on a percentage of the annual gross revenue.

National Park Service policy requires that all concessioners be evaluated at lease three times annually. Therefore, all river-running concessioners operating in Grand Canyon National Park will be evaluated as required by policy. Evaluations will cover on-river activities as well as compliance with permit conditions such as financial reports, nondiscrimination, insurance, etc. On-river evaluations will be conducted both by National Park Service personnel accompanying concessioner river trips and by National Park Service patrol people contacting trips on the river, at attraction sites and at camps.

E. Noncommercial Permit Management

Noncommercial permits will be granted on a first-come, first-served basis. A waiting list will be maintained. A beginning date for receiving noncommercial permit applications will be established. It is expected that the number of applications received on the beginning date under the new plan will be more than can be accommodated during the first season. A lottery will be operated for this first block of applications. As applications are drawn, they will be granted permits until all launch dates for the first season are filled. The lottery will be continued for all initial applicants, and as they are drawn

they will be placed on a waiting list for the subsequent season. Thereafter, applications will be accepted in the River Unit Office at any time and placed first-come, first-served at the end of the waiting list.

In submitting an initial application, the applicant need not include a list of participant names. A trip participant list will be required when the applicant's name comes to the top of the waiting list and is granted a permit. If any persons on the participant list are also applicants on the waiting list, their names will be removed from the waiting list. After the trip is completed, participants may again apply for a river trip permit and be placed at the end of the list.

When a trip application comes to the top of the list, the applicants are assigned, as nearly as possible, a launch date of their choice. If they cannot meet the assigned launch date, they will have the choice of any unassigned launch dates for the remainder of the season. If there are no available dates, the permittee is placed on the top of the waiting list to be assigned the next available launch date. Cancellations will be filled by the next available person on the list until three weeks prior to launch date. The waiting list is periodically up-dated through the mailing of interest cards. If no response is received from the interest card, the permittee's application is removed from the file.

F. Launches from Diamond Creek

A river-running permit is required for any noncommercial parties launching at Diamond Creek. A quota and reservation system will not be established at this time, but the permit system will make boaters aware of equipment requirements, safety procedures, and environmental considerations. It also allows the National Park Service to monitor visitor use levels. These river-running permits are issued by the River Unit or the Pierce Ferry ranger prior to a trip leaving Diamond Creek. Commercial and noncommercial river runners must meet all operational requirements for river trips as outlined in this plan. All commercial trips launching at Diamond Creek must have a current concession permit with Grand Canyon National Park. All river runners launching at Diamond Creek will have to arrange permission with the Hualapai Tribe to use the Diamond Creek road and launch ramp , as well as for any off-river activity on Hualapai Tribal land.

G. Launches Between Lees Ferry and Diamond Creek

Any noncommercial river trip launching between Lees Ferry and Diamond Creek is required to obtain a permit through the system outlined in IV. E. All commercial river trips launching at any point within the canyon must have a current concession permit or contract with the National Park Service.

V. ENVIRONMENTAL MANAGEMENT

A. Fires

Use of fires on river trips is limited because of the environmental impacts this activity causes. Those impacts are the buildup of charcoal and ash on beaches, and stripping of native trees and shrubs for firewood due to the lack of natural driftwood.

Fires are limited to esthetic and warming purposes during a specified portion of the summer season. That specified time during which this requirement applies will be designated in the annual operating requirements. Wood must be carried into the canyon for summer fires. Driftwood from along the river may be used for winter fires. Gas stoves must be carried for most cooking purposes. Charcoal briquettes may be used for dutch ovens, grilling meat, etc. All wood or charcoal must be contained in a fire pan. No fires are allowed when away from the river corridor.

The annual operating requirements contain specific details for the use of fires, fire pans, stoves, etc. (see Appendix A)

B. Human Waste Disposal

All river trips are required to haul human waste generated by their group. This procedure is necessary due to the potential health hazard to the park visitor, impact on natural resources, esthetic impacts (sight and smell) and the potential destruction of irreplaceable archeological resources resulting from burial of waste in the canyon. National Park Service experience indicates that human waste can be removed at an acceptable cost and with little inconvenience to the visitor. The procedure is outlined in Appendix C.

C. Trash, Litter, Soap

All trash and litter must be carried out of the canyon. Use of soap is not allowed in side streams. Any soap used must be biodegradable. Specific details may be found in the Annual Operational Requirements, Appendix A.

D. Trails

Single trails are to be designated and maintained from the river to points of interest and other environmentally sensitive areas. To continue the present haphazard multiple trail system is unacceptable. Closure of existing trails and areas presently visited would not be feasible as it would require more effort to effectively patrol the closures than is reasonable. Reduction of visitor use would not accomplish desired goals since this, along with other trampling damage, is not a function of numbers of people as much as of where they walk. Establishing or designating single trails may require occasional minor amounts of construction.

A total of 12.1 miles are to be defined and maintained at the specific locations listed below:

Area	River Mile	Miles of New Trail	Total Miles of Trail Maintenance
South Canyon	32 (N)	0.5	1.5
Saddle Canyon	47 (N)	1.0	2.5
Nankoweap	52 (N)	1.5	2.0
Little Colorado	61.8 (S)	1.5	3.0
Cardenas Creek	72 (S)	1.0	2.0
Unkar Delta	72.5 (N)	0.5	2.0
Hermit Creek	95 (S)	2.6	4.0
Shinumo Creek	108 (N)	0.5	0.5
Elves Chasm	116 (S)	0.5	0.5
Stone Creek	132 (N)	0.5	2.0
Tapeats Creek	134 (N)	0.5	3.0
Deer Creek	136 (N)	1.0	7.0
Havasu Creek	157 (S)	0.5	1.5
		12.1	31.5

E. Historical and Archeological Resources

Specific Indian religious sites are closed to hiking and/or camping. These sites are identified in the Annual Operating Requirements, Appendix A. No archeological or historic site may be disturbed. No artifact may be removed from the canyon.

The following archeological sites are subject to heavy visitation and will be monitored, evaluated, stabilized, and protected as necessary to preserve their values in compliance with the mandates of the National Historic Preservation Act of 1966, and following consultation with the Advisory Council on Historic Preservation.

Site Number	Type of Site	Work Needed
1. C:5:1	Pueblo Ruins	Stabilization
2. C:5:3	Stanton's Cave*	Repair Fence
3. C:9:1	Pueblo Ruins	Stabilization
4. C:13:4	Prehistoric Midden*	Test Excavation

Site Number	Type of Site	Work Needed
5. C:13:66	Rock Shelter*	Full Excavation
6. C:13:2	Pueblo Ruins	Stabilization
7. C:13:10	Pueblo Ruins*	Test Excavation
8. C:13:11	Masonry Granary	Stabilization
9. B:16:3	Pueblo Ruins	Stabilization
10. B:15:1	Pueblo Ruins	Stabilization
11. B:10:4	Pueblo Ruins	Stabilization
12. B:10:1	Pueblo Ruins	Stabilization
13. A:16:1	Pictographs*	Test Excavation
14. G:3:3	Rock Shelter*	Test Excavation

* Regular inspection of sites with research potential may show that active preservation or data recovery measures (stabilization or emergency excavation) may be necessary.

F. Restricted Sites

There are many ecologically sensitive areas identified in the FES which will require special attention as part of the monitoring program. Some of these areas have already been placed off limits to camping and/or visitation in order to protect their inherent unique qualities. A list of those that have been protected from use or visits is found in the annual operating requirements.

G. Monitoring and Continued Research

Data from research projects completed in 1976 have been used in evaluating impacts of current visitor use levels and patterns, and in developing the management plan. It is recognized that additional data will be needed. Continued effort will be required in the following areas.

1. Sociological

Further refinement of information regarding relative demand by the public for noncommercial and commercial trips is essential. Existing data have provided groundwork for setting initial allocations. However, a more reliable process is needed to accurately assess the demand for commercially guided trips, taking into account the number of turn-aways and cancellations, and the effect of advertising activities.

Analysis of noncommercial permit demand is needed to determine duplicate applications, false names, and number of people that do not apply due to the tremendous competition for permits. The data can then be compared and a more responsive allocation made.

It must be recognized that demand for commercial vs. noncommercial trips is not static. Continual monitoring and adjustments in allocations will be required.

Monitoring of contacts and crowding under the new management plan is essential. Also important is continued assessment of visitor perception of the trip experience.

2. Biological

There is need for further data and monitoring of ecological changes to ensure that the resource is being protected and to assess the effects of changing use patterns.

The environmental health of campsites and points of interest including off-river camping sites must be monitored. The data gathered will be used to adjust visitor use levels to mitigate longer term resource impacts.

3. Other

Monitoring of economic impacts on concessioners and visitors resulting from the restrictions, limitations, and requirements established by the plan is also important.

To comply with Executive Order 11593, it is imperative to evaluate cultural and historic resources within the river corridor and related use areas that are or may be affected by river travelers, and to monitor impacts on these resources resulting from river runners. Protective measures will be taken as required.

VI. GENERAL GUIDELINES

A. Plan Review and Revision

It is expected that periodic modifications of the plan will be necessary. Future modifications will be based on data and information from monitoring studies and from public input. Normally, specific detailed requirements concerning boat types, boat capacities, safety and emergency equipment and procedures, trip leader and guide standards, resource protection procedures, public health standards, etc., will be reviewed and modified where needed on an annual basis. Use, allocation, scheduling, and related matters will normally be modified on a longer term basis of from three to five years. However, in any situation where a critical need for modification arises, the Superintendent reserves the right to make such a modification whenever it is necessary.

The procedure for modification will include:

- -Conducting research and evaluating data
- -Determining alternate management directions
- -Considering public review and comment
- -Notifying all river-running permit holders of proposed changes
- -Notifying the general public through local and/or Federal Register publication

B. Education of Commercial Guides, Noncommercial Trip leaders and Visitors

It is essential that commercial guides, trip leaders, and passengers are fully educated as to river management requirements. The educational provisions are listed below:

- -Annual written operating requirements for every guide and trip leader
- -An audio-visual program on resource protection for all commercial and noncommercial river passengers
- -Commercial guide and trip leader training programs in minimum impact behavior, safety, sanitation and interpretation. A minimum of two 1-week commercial boatman training sessions per year will be planned, providing funds and manpower are available to the National Park Service. Commercial guides and trip leaders should attend at least one of the 1-week sessions during the first year of employment. Alternate or additional methods and sources of training guides may be arranged by concessioners. Ability, knowledge, and willingness to impart information gained through training or other sources to passengers will be noted on concessioner evaluations. All noncommercial trip leaders must attend a one-day training session at Lees Ferry.

Commercial guides and noncommercial trip leaders must ensure that members of their group follow all applicable National Park Service rules, regulations and guidelines.

C. Boating and Safety Requirements

Based on past experience, current boating and safety requirements have been found to be adequate and will be continued. A summary of those standards are outlined below and a complete description can be found in Appendix A.

There are specific types of watercraft and corresponding load capacities (numbers of people) that are allowed to run the river. Exception to the rules outlined in the annual operating requirements must be approved by the National Park Service.

Wearing of U.S. Coast Guard approved life jackets at all times while on the river is required. Types of life jackets and other flotation devices to be worn or used by commercial passengers, boatmen, and non-commercial river runners are described in Appendix A.

All river trips are required to carry first aid supplies and equipment. A list of recommended supplies and equipment can be obtained from the River Unit at Grand Canyon National Park. All trips are required to carry some emergency communications and signaling equipment in the event of any emergency medical or other situation arising on the river. Other emergency repair and spare parts are required on all trips, such as extra oars or paddles, boat patching kits, pumps, ropes and maps.

D. Guide and Trip Leader Standards

Standards for commercial trip leaders and guides have been established. These include sufficient previous experience on white water rivers, including the Colorado in Grand Canyon, to ensure that a person has the skill to successfully negotiate the rapids, as well as to provide information and interpretation for the visitor. In addition, the guide must be able to: meet and cope with first aid situations and emergency evacuation procedures, deal with boat maintenance and repair, and be especially knowledgeable and actively work to protect the canyon's resources. A commercial trip leader must have had at least six trips through the canyon (as a guide) in the type of craft being used. A guide must have had three trips through the canyon in the type of craft to be run, having run all rapids in the river in this craft at least twice.

Standards for noncommercial trip leaders are less stringent regarding previous experience on the river in Grand Canyon, but it is required that they attend a one-day training session to learn the proper procedures regarding resource protection, safety and emergency evacuation, as well as some interpretation (see Appendix A for details).

E. Special Transportation Regulations

1. Helicopters

Helicopters used to transport passengers to and from the river must operate from lands outside the boundaries of Grand Canyon National Park. Commercial river-running companies will be required to schedule passenger exchanges at designated times and places specified by the National Park Service. These

flights will be coordinated with commercial outfitters and those in control of the lands being used.

2. Mules and Horses

The park will arrange for a concessioner to provide mule takeouts at two points in the canyon. These areas will be Whitmore Wash and Phantom Ranch. This will be done through the existing mule concession permits. These concessioners will provide transportation for passengers and baggage to and from river trips.

River concessioners must make arrangements with mule concessioners. Up to 10 mules a day will be available, by prior arrangement, for river passengers at Phantom Ranch. Up to 30 mules or horses will be available, by prior arrangement, at Whitmore Wash.

3. Hiking

Visitors may hike in or out of the canyon to meet or leave a river trip. However, overnight hiking trips require a permit obtainable through the River Unit Manager.

F. Health and Sanitation

The proper storage and handling of food on river trips is important to minimize the spread of communicable diseases. Personal cleanliness of food handlers, proper type and temperature of storage boxes, cleanliness of cooking equipment, and washing dishes properly are some of the most important items. Further details are found in Appendix C.

Applicable Federal, State and local government laws and regulations will govern health and sanitation procedures on all river trips.

VII. COORDINATION WITH OTHERS

A. Bureau of Reclamation

Bureau of Reclamation has responsibility for management of Glen Canyon and Hoover Dams including water storage and releases. Water releases from Glen Canyon Dam and water storage in Lake Mead have direct effect on river running in Grand Canyon. When Lake Mead is at a maximum volume there are approximately 5 miles of free-flowing river below Diamond Creek, with the remaining 47 miles to the park boundary (Grand Wash Cliffs) being lake waters. Although there is a current to Grand Wash Cliffs, it is very slow and for the most part not perceptibly moving.

The Colorado River Front Work and Levee System Act of March 3, 1925, as amended, authorizes the Bureau of Reclamation to investigate, operate, and maintain the Colorado River from Lees Ferry to the International Boundary between the United States and Mexico. In addition to regulating water releases, the Bureau studies potential hydroelectric and water storage sites, investigates water quality and techniques of improvement, and carries out miscellaneous operational functions associated with river flow, including gauging, sedimentation, side wash inflow, and monitoring rockslides.

The Bureau of Reclamation has released approximately 8.23 million acre-feet of water annually from Lake Powell in recent years. This flow in terms of daily releases in cubic feet per second (cfs) fluctuates considerably. The daily fluctuations require adjustments in river-running schedules as the high and low flows arrive at different times of the day, depending upon location in the canyon. Also, in years of low precipitation and run-off, the timing of water release is set to correspond with power demands. Generally, when there is no power demand only minimum flows are released. Low water release periods make it difficult and sometimes impossible to run the river, especially for the larger motorized boats. It is generally accepted by most river runners that minimum daily flows of less than 3,000 cfs make boating very difficult. This is especially so if those flows are constant at that level. Large motor boats operate best at flows of 5,000 cfs or more but can continue when minimum flows are less than that, provided daily highs are above 5,000 cfs. Oar boats can continue to operate on flows of 1,000 to 3,000 cfs. However, if daily flows are below 1,500 cfs, larger oar boats (22'+) cannot continue and smaller oar boats (18'or less) have difficulty. During high precipitation years, high flows are common. High flows are less of a problem for boating than low flows. However, high flows do erode beaches in the canyon more rapidly. It has been clearly shown that daily fluctuation of water releases erodes beach sands more rapidly than stable or consistent flows.

Coordination with the Bureau of Reclamation allows the National Park Service to be informed on water release levels from Glen Canyon Dam and the level of Lake Mead and to transmit that information to the river-running public. It also provides an opportunity to give the Bureau of Reclamation input to operating plans for Colorado River storage projects.

B. Glen Canyon National Recreation Area

Most Grand Canyon river trips launch at Lees Ferry. Lees Ferry is located just above the mouth of the Paria River within Glen Canyon National Recreation Area and is administered by the National Park Service. The boundary between Grand Canyon National Park and Glen Canyon National Recreation Area is less than one mile below Lees Ferry at the mouth of the Paria River.

The major public use at Lees Ferry is the launching of Colorado River trips through the Grand Canyon. There are, in addition to the commercial guides, passengers, and noncommercial river travelers, a considerable number of logistical personnel who drive shuttle cars, buses, or trucks and assist with boat launching.

Grand Canyon National Park has a ranger located at Lees Ferry. This ranger is responsible for checking out all river trips that launch at the Ferry to insure compliance with river-running permit conditions. The ranger also compiles data including date of launch, number of passengers, number of crew, noncommercial trip participants, length of trip, camp areas to be used, off-river hiking areas and dates. This data is critical to management of river running use. Information and education programs for noncommercial trips and commercial passengers will also be conducted at Lees Ferry. Since all of these activities take place within Glen Canyon National Recreation Area it is esssential that close coordination be maintained between the Grand Canyon and Glen Canyon rangers stationed at Lees Ferry. It is also important that close coordination be maintained between the Superintendents of the two areas in order that the necessary support for these activities is provided to the rangers. This coordination is outlined in a cooperative agreement for management of Lees Ferry. This agreement will be updated as needed to reflect changing conditions.

C. Navajo Indian Reservation

The 12.5-million acre reservation of the Navajo Nation borders the east bank of the Colorado River in the Marble Canyon section of the park from River Mile 0 at Lees Ferry to River Mile 61.8 at the confluence of the Little Colorado River. The area from the river to and beyond the rim is an undeveloped tribal park.

The only significant visitor activities in this area are occasional camping above high waterline, side canyon hikes (mostly to Silver Grotto) and infrequent hiking into and out of the canyon at the Little Colorado River. The route leads up the Little Colorado River gorge and north out of the canyon via the Salt Trail onto the Navajo Reservation. The use of this access route is expected to increase slightly for less than full-length river trips. This future use will be coordinated with the Navajo Tribe as fees for use of tribal land may be involved.

D. Havasupai Indian Tribe

The Havasupai Traditional Use Lands in Grand Canyon National Park are located between the south bank of the Colorado River from River Mile 116 to River Mile 165 and 1/4 mile back from the canyon rim around Great Thumb Mesa from Royal

Arch Creek to National Canyon. Use of these lands by the Havasupai is subject to agreement between the Havasupai Tribe and the National Park Service. The National Park Service regulates all public use. Many river trips exchange passengers at Havasu Creek. Hiking into or out of Havasu Canyon to meet or leave the trip usually necessitates an overnight stay. No camping is allowed in Havasu Canyon on national park lands, which extend about four miles back from its confluence with the Colorado River.

On the Havasupai Indian Reservation, a fee is charged for crossing tribal lands. In addition, there is a per person, per night camping fee. All arrangements should be made with the Havasupai Tourist Enterprises, Supai, Arizona.

Arrangements for park ranger patrol of hiking and other activities in the traditional use lands will be established through consultation with the Havasupai Tribal Council.

E. Hualapai Indian Reservation

The Hualapai Tribe occupies a 992,000-acre reservation bounded on the east by the Havasupai Reservation and on the north by the river from River Mile 165 near National Canyon on the south bank to River Mile 273.

Diamond Creek at River Mile 225, located on the reservation, provides the first road permitting vehicles access to the river below Lees Ferry. This road is used by a majority of river users, especially nonmotorized parties, as a takeout point. It is also a launching point for trips running only the Lower Gorge. The Hualapai Tribe charges a fee for river takeouts at Diamond Creek and helicopter landings on tribal land above Diamond Creek. This fee is subject to change and will be published yearly along with the annual operating requirements.

All river runners will be notified in permit conditions or operating requirements that the Hualapai Tribe owns the land within the Grand Canyon above the river high water line on the south bank to the south rim between River Mile 165 and River Mile 273. Any hiking, camping or other use of the Hualapai Tribal lands must be approved by the Hualapai Tribal Council. Helicopter landings for river trip takeouts on Hualapai Tribal lands require prior approval of the Tribal Council.

The Hualapai Tribe depends on the National Park Service and the river operators to provide an advance schedule of proposed takeouts at Diamond Creek. This information must be accurate and timely.

F. Lake Mead National Recreation Area

Lake Mead National Recreation Area is located adjacent to the lower end of the Grand Canyon and is administered by the National Park Service. When filled to capacity, Lake Mead backs into Grand Canyon National Park about 47 miles. There is considerable boating and fishing on these waters. Many river running expeditions continue through the Lower Gorge into Lake Mead and terminate at Pierce Ferry about three miles beyond the Grand Wash Cliffs. Some trips go on to South Cove or Temple Bar. Use of launch ramps and facilities

at Pierce Ferry, South Cove, and Temple Bar by river runners requires close coordination with the National Park Service at Lake Mead. Management activities that change river runner use levels on Lake Mead, or river runner need for more or less logistical facilities, will be communicated to Lake Mead National Recreation Area in a timely manner.

A National Park Service ranger resides at Meadview near Pierce Ferry, and patrols the Lower Gorge of the Grand Canyon. This ranger is responsible for visitor protection, law enforcement, search and rescue, and visitor use statistics. The rangers for Lake Mead National Recreation Area and Grand Canyon National Park maintain close liasion and coordinate patrol efforts.

G. State of Arizona

The river management program will require continuous cooperation and coordination between the National Park Service and the appropriate agencies and offices of the State of Arizona. Each will keep the other informed of changes necessary in accordance with laws, regulations, and protection of resources and visitors. Such offices include (but are not limited to):

-Air Quality Control

-Department of Economic Security

-Game and Fish Department

-Health Services

-Water Quality Control

APPENDIX A - ANNUAL OPERATIONAL REQUIREMENTS

I. Watercraft

II. Emergency Equipment and Procedures

III. Tripleader and River Guide Standards

IV. Environmental Protection and Sanitation

V. Restricted Areas

VI. Commercial Launch Dates

VII. Other River Trip Limitations

VIII. Miscellaneous Provisions

APPENDIX B - ORIENTATION TALKS

APPENDIX C - HEALTH AND SANITATION GUIDELINES

APPENDIX D - NONCOMMERCIAL RIVER TRIP AFFIDAVIT

APPENDIX E - GLOSSARY OF TERMS

APPENDIX A
ANNUAL OPERATIONAL REQUIREMENTS

The following are the annual operational requirements for river trips. The requirements are subject to annual revisions as resource monitoring and experience dictate and as the phaseout of motor-powered craft continues.

I. WATERCRAFT

A. Types

Type of boats and their capacities will be established for each commercial outfitter. Noncommercial trips must use one of the types listed below unless special approval is granted by the Superintendent or his appointed representative.

1. The minimum size of an approved inflatable raft will normally be 12' x 5'. However, each request will be considered on its own merits and smaller boats may be allowed depending on the particular raft and the skill or experience of the boatmen. For river trips consisting of a single boat, it is strongly suggested that the minimum size be 15' x 7'. Any river trip of a single boat must demonstrate the ability to carry the required equipment for resource protection, safety, repair, and other gear plus food. Experience of the participants will also be considered.

2. The hard-hulled boat or dories must be able to carry the required equipment for resource protection, safety, and repair as well as food and other gear. A minimum of two boats should travel together for this purpose. Single dory trips may be allowed if all requirements are met and the people involved have sufficient experience to conduct the trip.

3. Whitewater canoes, kayaks, and sportyaks may also be allowed. Such boats should generally be accompanied by support craft. Proposals for trips using these boats, without support craft, will be considered and may be allowed if equipment for resource protection, safety, and repair can be carried and the experience of the people involved appears to be adequate. Single boat trips may be allowed based on this same criteria.

B. Capacities

No combination of people will exceed these totals (per craft) unless special approval is granted by the Superintendent or his appointed representative:

1. Dories, 5 people including crew
2. Inflatable rafts and pontoons:

    a. G-Rig and J-Rig, 37 feet long - 20 people including crew.
    Pontoon rafts, 33-37 feet long - 15 people including crew.

    b. All other rafts and pontoons 27 feet long:
    - with outriggers - 12 people including crew
    - without outriggers - 8 people including crew

c. Rafts and pontoons 22-27 feet long:
- 8 people including crew

d. "Snouts" - 22 feet long, 8 people including crew.

e. Rafts 17-18 feet long with 21-24 inch tubes - 6 people including crew triple operation - 18 people including crew.

f. Rafts 15-17 feet long with 19-21 inch tubes - 5 people including crew, triple operation - 15 people including crew.

g. Rafts 22 feet long with 24-28 inch tubes - 7 people including crew.

C. Registration

All watercraft on the Colorado River within Grand Canyon will be registered and will display numbers and decals and otherwise comply with all applicable Arizona State Boating Laws.

II. EMERGENCY EQUIPMENT PROCEDURES

A. Life Preservers and Regulations

1. Each passenger MUST have a U.S. Coast Guard approved personal flotation device (PFD) either Type I or V. Boatmen may use USCG PFD approved for personal use (Type II, III, or V). One extra PFD for every 10 passengers and a minimum of one extra PFD per boat or raft must be carried. They must be in good and serviceable condition in compliance with the U.S. Coast Guard Standards, and must be worn and properly fastened, at all times while on the river (36 CFR (b)(2)). PFD's are subject to testing prior to departure at Lees Ferry, and those found to be nonserviceable will be marked and set aside or discarded in an appropriate manner. Each commercial passenger will be assigned a jacket with an identifying mark to be fitted and worn while on the river during the entire trip. If a jacket becomes defective during a trip, another serviceable, marked jacket will be assigned.

2. Each boat over 16 feet in length must carry and have available a USCG approved Type IV PFD (to be thrown to a person in the water).

3. Rafts/boats operating on Lake Mead at night must comply with USCG running light requirements.

B. First Aid

A major first aid kit shall be carried on each trip with a smaller kit on each additional boat. (See Guide and Leader, Section III, for first aid training requirements.)

C. Communications and Signalling

1. Emergency signalling equipment will include a signal mirror of the United States Air Force type and a set of signal panels, 3' x 10' of international orange. In the event of an emergency, the symbol X" marked or placed on the

ground with these panels or by any means will signify that help or emergency aid is needed. Upon notification by observers, a helicopter will be dispatched by the National Park Service. (See Part F, Helicopter Evacuation.)

2. Additional recommended equipment is a ground-to-air radio transceiver on frequency 122.8 or 122.9 MHz, which is generally for plane-to-plane communication but may be used by boat operators. Frequency 123.05 is the local frequency used by Scenic Airlines.

D. Other Emergency Items

1. A minimum of one extra set of oars must be carried on each oar-powered boat or raft. An extra set of paddles are acceptable for paddle boats or for small craft listed in Section I.A(3) and other cases where specifically approved.

2. On motorized trips, an extra motor must be carried for each raft. Also required are spare parts of the types most commonly needed, such as propellers, water pumps, shafts, lower units, etc.

3. Each river trip will carry an air pump when neoprene rafts or pontoons are used.

4. Every river trip will carry a boat repair kit.

5. All motorized craft are required to carry fire extinguishers which conform to current USCG regulations.

6. An adequate supply of ropes and canteens should be carried.

7. One or more of the following maps or guides should be carried on each boat: The Les Jones Scroll Map of the Colorado River Trip from Lees Ferry to Temple Bar; Grand Canyon River Guide by Buzz Belknap; Pictorial Color Map of Grand Canyon by Jack Currey; appropriate USGS quadrangles; Brigham Young University Guidebooks to the Colorado River Part II and III by Kenneth Hamblin and J. Keith Rigby, or the Colorado River Guidebook by Troy L. Pewe.

E. Incident Reports

Section 2.22, Title 36 of the Code of Federal Regulations (36 CFR 2.22) states: "All incidents resulting in injury to persons or damage to property (other than those specified in Parts 3 and 4), must be reported by the person or persons involed as soon as possible to the Superintendent. This report does not relieve persons from the responsibility of making any other accident report which may be required under State Law."

Section 3.13(b) (36 CFR) also applies: "A report of collision, accident, fire, or other casualty that results in property damage or any personal injury or death to any person must be made by each operator of the vessels involved to the Superintendent as soon as possible, and in any event within 24 hours. This report does not relieve the responsibility of making boating accident reports as may be required by States or the U.S. Coast Guard."

Incident forms or reports must be given to a National Park Service Ranger at the time of evacuation or to a Park Ranger at Phantom Ranch or Pierce Ferry. Incident forms will be supplied by Grand Canyon National Park and carried on each trip.

F. Helicopter Evacuation

1. In the event of an emergency, the trip leader or guide will contact the National Park Service. 2. The National Park Service will arrange for the helicopter evacuation and notify the home office of the river concessioner. 3. The concessioner will be responsible for the cost of the evacuation.

When the helicopter evacuation of a passenger is requested by a friend or relative (as in the case of an emergency at home), arrangements will be made through Grand Canyon National Park. The National Park Service will not bear the cost of such evacuations.

III. TRIP LEADER AND GUIDE REQUIREMENTS

A. Certification

The following requirements must be met before guiding or leading a commercial trip on the Colorado River through the Grand Canyon.

1. Commercial Guide

An individual who meets the following qualifications:

a. Must be age 18 or older.

b. Must have made at least three river trips through Grand Canyon on the Colorado River as a trainee under a qualified guide. Must have run every rapid in Grand Canyon at least twice in the type of craft to be used.

c. Can demonstrate ability to navigate the river and operate a boat accordingly.

d. Has operated the emergency communications equipment carried on the trip.

e. Knows National Park Service, State, and USCG regulations applicable to river running.

f. Demonstrates a knowledge of the natural and human history of Grand Canyon National Park and, in particular, the river corridor. Has the ability and shows a willingness to impart this knowledge to passengers.

g. Has a working knowledge of safety, sanitation, and equipment repair.

h. Has an American Red Cross Standard First Aid Certificate or equivalent.

2. Commercial Trip Leader

Individuals in charge of river parties shall possess the character, personality, and capabilities of responsible leaders. They must also:

a. Have made at least six river trips through the Grand Canyon of the Colorado River as a guide running the entire trip in the type of craft to be operated as a leader.

b. Hold a current American Red Cross Advanced First Aid certificate or the equivalent.

c. Give an accurate orientation talk to all passengers. This orientation will cover life preservers, boating safety, swimming, hiking safety, drinking water, sanitation, cultural and natural history, and resource management.

3. Noncommercial Trip Leader and Participants

Must have experience navigating the type of boat to be used on one of the other western whitewater rivers or the equivalent. Because of the unique nature of the Grand Canyon portion of the Colorado River, the trip leader, or another member of the party, must have made a previous trip. Controlled water releases from Glen Canyon Dam result in daily water fluctu- ations between 1,000 and 32,000 cubic feet per second, a considerably greater fluctuation than most whitewater rivers.

The severity of the rapids, water temperatures ranging from 42-1/4 to 58-1/4 degrees F., 100-plus degrees F. air temperatures, and the degree of isolation require that the trip leader and guides have a working knowledge of whitewater safety, first aid, and repair of river equipment. Also needed are the techniques of whitewater navigation and map reading.

IV. ENVIRONMENTAL PROTECTION AND SANITATION

A. Refuse

All refuse must be carried out. Cans, rubbish, and other refuse MAY NOT BE DISCARDED IN THE WATER OR ALONG THE SHORE OF THE RIVER. This restriction applies to any portion of Grand Canyon National Park. Refuse cannot be left at Phantom Ranch, Diamond Creek, Pierce Ferry, or South Cove. Refuse and garbage attract red ants, flies, and animals, and result in fouled beaches. Liquid garbage such as coffee, soup, and dishwater must be strained; solids should be placed in garbage bags, and liquids dumped into the river. Grease must be carried out. The trip leader must make sure that participants are aware of proper disposal of all litter including pop tops and cigarette butts.

B. The Use of Soap

Biodegradable (low phosphate) soap may be used in the Colorado River only. Use of any soap or detergent in side streams or within 100 yards of any side stream is prohibited.

C. Portable Toilets

It is the responsibility of each boat party to remove its solid human waste from the Canyon. The system that must be used is described in Appendix C. Other systems must be approved by the Superintendent or his appointed representative. These facilities will be set up upon arrival and remain until the party breaks camp. No toilet paper should be burned: it should be placed in a plastic sack and deposited with other human waste. Between camps, when the toilet is not set up, people are encouraged to defecate or urinate as far away as possible from potential camping areas. When unavoidable, urination should take place in the wet sand below high water mark.

D. Fires

Gas stoves (propane, white gas, etc.) for cooking are required on all trips. Charcoal briquettes may also be used for cooking. Diminishing driftwood, destruction of native vegetation and deposition of charcoal on beaches make this restriction necessary. Wood fires may be used for warmth or esthetics, but not for cooking. However, from May 1 through September 30, all wood for fires must be carried into the canyon from an outside source. From October 1 through April 31, driftwood from beaches may be used for warming and esthetic fires. Within the park, gathering of wood from standing or fallen trees (dead or alive) is prohibited. All fires must be contained in a fire pan that is at least 2 feet by 2 feet with a 3 inch-high lip around its edge. Smaller fire pans (12" x 12" x 3" minimum) may be used for charcoal briquettes. A fire permit is required and all fire pans must be approved by the Lees Ferry Ranger. All ash and charcoal residue must be carried out of the canyon, not left on the beach or dumped in the river as in the past.

The kindling of open fires is prohibited at any time when away from beaches. Gas stoves for cooking are required for overnight trips away from the river.

E. Public Health

All river trips will comply with the requirements found in the Public Health Supplement in Appendix C.

V. RESTRICTED AREAS

Areas along the Colorado River closed to either camping, open fires, or visitation:

A. Redwall Cavern - no camping and no fires.

B. Little Colorado - no camping from River Mile 60.5 to River Mile 65.0 on the south side of the river. The Sipapu is a Hopi religious site. Please honor it as such and do not disturb.

C. Hopi Salt Mine - no visitation is allowed on the east side of the river from River Mile 63 to River Mile 64. This area contains another Hopi religious site.

D. Phantom Ranch - no camping or fires are allowed one-quarter mile upstream from Kaibab Bridge to one-quarter mile downstream from Pipe Creek (Garden Creek). Emergency camping in this area may be approved by the Phantom Ranch ranger. Passengers exchanging on trips at Phantom and wishing to camp at either Bright Angel Campground or Indian Gardens must have an overnight permit (which requires advance reservations) for these areas.

E. Elves Chasm - no camping or fires within one mile of Royal Arch Creek's confluence with the river.

F. Deer Creek Falls - no camping or fires within one-half mile of the confluence of Deer Creek and the Colorado River on north side of the river.

G. Matkatamiba Canyon - day use only, no camping or fires.

H. Havasu Creek - no camping or fires within one-half mile of Havasu Creek's confluence with the river. Overnight use is permissible at the Havasupai campground only. (See Part VIII. F. Backcountry or Off-River Camping.) For reservations at Havasu Campground, call or write the Havasupai Tourist Enterprises, Supai, Arizona (telephone: 602-448-2121). A $5.00 fee is charged for any hiking on the Havasupai reservation. An additional fee of $2.00 per person, per night is charged for camping.

I. Emergency closures - as listed on the bulletin board at Lees Ferry.

VI. COMMERCIAL LAUNCH DATES

Commercial launch schedules will be established by February for the next year's boating season. An example is February 1980 would be the date for establishing the 1981 summer boating season and the 81-82 winter season schedules. Concessioners will submit proposed launch schedules to the National Park Service by January 31 and the National Park Service will prepare a calendar showing proposed schedules. The National Park Service will schedule a meeting in mid-February to be attended by all concessioners where the final schedule will be established. If changes in the schedule are necessary after that time, the National Park Service will work out needed modifications with the companies involved. Any company who sends launch schedules in late will be assigned the closest launch dates available to those it proposes.

VII. OTHER RIVER TRIP LIMITATIONS

A. The maximum number of commercial passengers per trip is 36. River trips traveling or camping together may not exceed 36 passengers. See Part VIII.F. for off-river camping information.

B. One hundred commercial passengers may depart from Lees Ferry daily for the summer season. A maximum of 15 noncommercial passengers may depart daily.

C. No person shall operate a vessel engaged in predominantly upstream travel between Lees Ferry and Diamond Creek. No vessel shall be operated that has more than 55 horsepower.

D. Subjects that must be covered in mandatory orientation talks are outlined in Appendix B.

E. Subletting of Commercial Allocations

Use allocations belong to the United States and may not be sublet for commercial or noncommercial purposes. To avoid subletting charges, commercial river companies should follow these guidelines:

1. All monies go directly to the concessioner. A booking agent can advertise and organize, but not operate the trip. A person or organization may not collect fees for a trip and then pay a concessioner a franchise fee to physically run the trip.

2. All trip participants must be under the regular insurance coverage of the concessioner company. Additional insurance may be provided by charter groups, etc.

3. A river concessioner using rental equipment must not have any company names on the boats, gear boxes, etc., other than its own or another authorized concessioner or the name of the equipment manufacturer.

4. In order to avoid the appearance or charge of sublet, all crew must be salaried or paid employees. Freelance river guides must be paid in a similar manner as all other company employees. All commercial crew members must meet the standards outlined in Section III and must be registered with the National Park Service prior to their arrival at Lees Ferry.

In summary, a sublet exists when persons operate a trip with their own equipment, personnel, and insurance, and pays a river concessioner a fee for its use allocation.

VIII. MISCELLANEOUS PROVISIONS

A. A fee is charged for each person, boat and truck using the Diamond Creek Road. Permits are required in advance. For further information contact:

Monroe Beecher, Director
Hualapai Wildlife & Outdoor Recreation Department
P. O. Box 216
Peach Springs, Arizona 86434

B. Rafts and boats operating at night must comply with USCG and State of Arizona requirements for running lights.

C. No cats dogs, or other animals are permitted on river trips.

D. River parties will, when possible, avoid heavily used campsites.

E. A copy of the current Operational Requirements must be carried on each trip and all river guides must have a sound knowledge of them.
F. Overnight permits are necessary for off-river camping in all areas of Grand Canyon National Park. All backcountry areas have group and individual overnight limits. The maximum number in any one group is fifteen (15) people, with camping in one spot limited to two nights.

There is a reservation system for the Phantom Ranch, Cottonwood, Indian Gardens, Deer Creek, Tapeats Creek, and Thunder River areas. Advance notice and an overnight permit is necessary for all overnight use.

Permits will be issued by the Backcountry Reservations Office through the River Unit manager. The written permit must accompany each off-river party. To receive permits mail your requests to the River Unit Manager. A letter of confirmation with the overnight permits will be mailed back to you if the requested areas are available.

G. All land on the south side of the canyon above the river high water line on its south bank, between Mile 165 and 273 is Hualapai Tribal Land. Any activities in this area such as hiking or camping requires the permission of the Hualapai Tribe.

H. It is the responsibility of the Lees Ferry Ranger to see that conditions in Appendix A are met prior to approving a launch.

APPENDIX B
ORIENTATION TALKS FOR CONCESSIONER GUIDED TRIPS

All companies must give orientation talks to their passengers. To ensure that each company covers the points stressed by the National Park Service, an outline and description of the items that must be covered before launching from Lees Ferry are listed below. Orientation talks may be given while traveling to Lees Ferry or at other times or locations, if approved in advance by the River Unit Manager.

I. All passengers should be informed that within Grand Canyon National Park all natural, historical, and archeological objects and wildlife are protected and must not be disturbed.

II. The river guides on motor-powered trips will be willing to shut down the motor and interpret natural features when safe to do so.

III. Purified drinking water will be available.

IV. Life jackets must be worn at all times when on the river and be kept properly fastened and adjusted. Passengers must be given a demonstration of how to wear the life preserver and what to do if they fall overboard.

V. Chemical toilets or other means of containerization of human waste will be provided and must be used while they are set up. The reasons for the human waste disposal system will be explained. The proper means of disposing of human waste when this system is not set up will also be explained.

Avoid camping areas, trails, and points of interest when urinating. At popular spots such as Havasu Creek go "high and far" to avoid the displeasing buildup of feces and urine. Passengers should be informed that the boats will occasionally be stopping above points of interest to prevent the buildup of human waste at popular areas, such as Havasu Creek, Deer Creek and Redwall Cavern.

VI. A crew member will use a single trail while leading passengers to popular areas.

VII. For winter trips, passengers will be informed of the proper methods and places to gather firewood.

VIII. The Lees Ferry ranger will make spot checks to ensure that the orientation talks are occurring prior to departure at Lees Ferry and that they include the preceding points. Failure to give proper orientation talks will be documented on the trip check out sheet and reflected in the concession evaluation report.

APPENDIX C
HEALTH AND SANITATION GUIDELINES

I. Human Waste Removal

With the porta-potti burial system of human waste disposal, over 5,000 burials took place in the river corridor each year. It is now required that all solid human wastes be carried from the canyon because of resource impact and the hazard to human health. The cheapest and, so far, most effective means of transporting solid human waste out of the canyon is by the use of air-tight military surplus ammunition boxes and plastic bags. The necessary items are:

a. Surplus ammo cans (rocket boxes) that measure 18" x 8" x 14".

b. A toilet seat.

c. Large, heavy duty plastic garbage bags.

d. Deodorant chemical, such as Aqua Chem, chlorine bleach, or quick lime.

e. Toilet paper, water dispenser and hand soap.

The system is set up as follows: one of the rocket boxes serves as the toilet container. It is first lined with one of the heavy duty large garbage bags with the excess folded around the outside edge of the can. Pour the deodorant into the open bag and place the toilet seat on top of the can. The water dispenser and the hand soap can be placed nearby. Used toilet paper, tampons, and sanitary napkins can be placed directly in the toilet. After use, the toilet should be covered with a large heavy duty garbage bag to discourage flies. To dismantle the toilet, squeeze the excess air out of the bag and tie it off. This may be done by placing the lower part of the bag into a wash bucket and allowing the water to force out excess air. Then place the bag into another bag and store subsequent wastebags with it. Tie off the storage bag and place it into the rocket box. After the lid is sealed, the container is ready for storage on the boat until the next use. The toilet seat, plastic bags, toilet paper, and deodorant are then stored in another rocket box. It is necessary to remove only two cans from the boat each time the toilet is set up.

The amount of chemical needed depends on the type used and the number of people on the trip. With liquid deodorant, a few ounces at the bottom of the bag is sufficient for six or seven people. With bleach, approximately twice as much is required. Quick lime should be sprinkled over the waste after each use. The deodorant reduces bacterial growth and the production of methane gas. The number of rocket boxes needed dependent on the number of people and the length of the trip. It has been found that it is possible to containerize about 70 to 90 person-days of human waste in one rocket box. One additional rocket box is needed for equipment.

A human waste receptable is provided at Pierce Ferry. Human waste contained in plastic bags may be deposited in that receptable. There are no receptables at any other of the take out locations. Therefore, trips taking out at

locations other than Pierce Ferry are required to deposit the containerized human waste in an approved solid waste landfill. Locations that will accept this material are, Flagstaff, Arizona; Kingman, Arizona; Fredonia, Arizona; nd Lees Ferry, Arizona.

Toilet paper is a significant source of litter along the river corridor. When the toilet is set up, all paper will be put in the toilet bag. At other times, place all toilet paper in a small plastic bag or other container and place it later in the toilet bag. Numerous fires have been caused by the careless burning of toilet paper. River guides are responsible for any fires caused by any member of their group by burning toilet paper.

II. Food and Water Sanitation

Certain sanitation practices are necessary to prevent the contamination of food and subsequent human illness. These are:

a. Before handling and preparing foods after going to the toilet or handling raw meat or poultry, wash hands with soap and water.

b. Cooked or other prepared foods should come in contact only with clean and sanitized surfaces, equipment, and utensils. Equipment used for raw foods should be washed and sanitized before using it on cooked foods.

c. Persons with communicable diseases, infected wounds on the hands and arms, or boils, should not prepare food.

d. Perishable foods should be kept at temperatures below 45 degrees F.

e. Foods such as meat and poultry products should be well cooked to destroy disease organisms.

f. After preparation and prior to serving, keep hot foods hot and cold foods cold.

g. Leftover perishable food should be discarded or refrigerated immediately in clean and protected containers.

h. Leftover perishable food should be thoroughly reheated before eating.

The most effective means of sanitizing dishes and utensils is the three-bucket system. The system is as follows:

a. Use three buckets large enough to immerse the largest utensils with one bucket heated to near boiling.

b. Add detergent to the heated bucket. Fill the second bucket with clear water for rinsing. Add chlorine to the third bucket at the rate of two teaspoons per gallon of water.

c. Wash dishes and utensils in the first bucket to remove grease and food particles. Water temperature should be 120 degrees F.

d. Rinse by dipping in the second bucket.

e. Immerse articles in the third bucket for sixty (60) seconds, twice as long if towel dried. The effectiveness of chlorine for disinfection is directly related to the time of exposure. Be sure to allow time for the chlorine to act.

f. Use a rack for air drying or wipe dry with clean paper towels.

Store the articles in a clean, dry location.

For safe drinking water, follow these two steps:

a. Add eight (8) drops of chlorine per gallon of water, adding a few drops more if the water is muddy.

b. Mix the water and chlorine and let stand uncovered in a wide-mouthed container for 30 minutes. Proper standing time will disinfect as well as dissipate the objectionable chlorine taste.

APPENDIX D
NONCOMMERCIAL RIVER TRIP AFFIDAVIT

Your signature on this affidavit indicates that you have considered the permit conditions and that your trip is organized in the spirit, as well as the intent, of the following conditions (36 CFR 5.3, Business Operations; 36 CFR 7.4(h), Grand Canyon National Park, Colorado Whitewater Trips). Failure to abide by these conditions will jeopardize future applications and will result in permit cancellation.

1. A private river trip must be participatory. Trip preparation (including logistics, food purchase, equipment assembly, transportation and vehicle shuttle) and conduct of the trip (including food preparation and sanitation) must be shared by members of the group. Collecting a set fee (monetary conpensation), payable to an individual, group or organization, for conducting, leading, guiding or outfitting a private river trip is not allowed. The trip leader should delegate responsibility (financial and otherwise) for various aspects of trip preparation and conduct.

2. The purpose of the trip must be for its recreational and/or educational values. The trip will not be conducted for monetary gain (either as a direct or indirect result of the trip) or acquisition of new equipment to the advantage of an individual, group or organization or for the purpose of amortizing equipment.

3. Media or direct mail or other advertising is not permissible.

4. Estimated overall trip cost:

(based on trip members)

5. A complete itinerary including off-river days and a list of boatmen, their experience, equipment, and other information ensuring compliance with the Appendix A of the permit application criteria must be provided at least sixty (60) days prior to trip launch. A National Park Service form will be provided for this purpose.

I have given complete and accurate descriptions and answers to all questions. I agree to comply with all park rules and regulations as stated in Appendix A of this application, and appropriate parts of the Code of Federal Regulations, AND ASSUME FULL RESPONSIBILITY FOR THE CONDUCT OF MY ENTIRE PARTY IN OBEYING THESE RULES AND REGULATIONS. To the best of my knowledge, my name and those of the trip participants appear on only one application and I understand that duplication of names or incomplete answers will make my permit application invalid. I also acknowledge that I have read and agree with all terms in the above noncommercial river trip affidavit.

It is unlawful to knowingly and willfully falsify or conceal by any scheme or by any false, fictitious or fraudulent statements or representations or to make use of any false writings or documents knowing them to contain any false, fictitious, or fraudulent statement or entry. Violators will be subject to a fine of not more than $10,000.00 or imprisonment for not more than five (5) years or both (18 U.S.C. 1001, 1970).

Applicant's Signature _____

APPENDIX E
GLOSSARY OF TERMS

Artifact Broadly defined to include any natural object or any man-made object more than twenty years old. No such object may be collected without a permit issued by the Superintendent, Grand Canyon National Park, or the Secretary of the Interior in the case of archeological objects and vertebrate fossils.

Attraction Sites Popular locations along the river that attract river runners and are at times crowded. These include geologic features, side canyons, archeological and historic sites, caves, waterfalls, and unusual vegetation.

Boatman Synonym for "river guide," and includes men or women who operate river-running boats.

Commercial Refers to boating companies who are concessioners operating under a permit from the National Park Service. These companies arrange river trips which provide a crew, equipment, and supplies to visitors for a fee. The crew operates the boats, prepares meals, sets up camp, and provides educational opportunities to learn about the area. "Commercial outfitter" is synonymous with "commercial river-running company."

Concession Permit A form of contract, issued to commercial river companies by the National Park Service. This permit allows them to provide a specific public service, in this case, river trips. In contrast, a concession contract, in the strict sense, requires that a specific service be offered for a certain period. The National Park Service may regulate practices and rates under both permits and contracts.

Concessioner A commercial company operating under contract or permit from the National Park Service to provide the public with service which the National Park Service has deemed necessary for the visitors use and enjoyment of the park. All concession operations must be consistent to the highest degree possible with the preservation of the park. Federal laws and National Park Service policies include the National Park Service Concessions Act of October 9, 1965 (P.L. 89-249; 79 Stat. 969) and National Park Service Management Policies, Chapter VIII.

Contact The sighting or hearing, by one or more members of a group running the river, of a boat belonging to another group. If a group is using more than one boat, the visibility from one boat of other boats belonging to the same group does not constitute a "contact".

Contact Time For a given group traveling the river, the amount of time during which one or more boats of other groups are visible or audible.

Full-length Trip A river trip undertaken by a passenger or participant who joins the river trip at Lees Ferry and travels to Diamond Creek. Some feel that a trip from Lees Ferry to Lava Falls, River Mile 179, or to Whitemore Wash, River Mile 188, constitutes a full-length trip. Others feel that a full-length trip is to Grand Wash Cliffs at Mile 277. For purposes of this plan it will be to Diamond Creek.

Hiking Permit A permit required for all hikes in Grand Canyon National Park involving an overnight stay below the rim. Such permits are issued by Grand Canyon National Park's Backcountry Reservations Office and are nontransferable. The only overnight stays below the rim not requiring hiking permits are those of river runners camping on beaches and visitors staying in the Grand Canyon National Park Lodges accommodations at Phantom Ranch.

Use Capacity The number of people who can be present at a location in a given unit of time without damage to plants, animals, and soil beyond what can recover in a reasonable period and without such crowding as would detract from the natural, esthetic qualities of the place. This capacity varies with the type of use; a given area being able to accommodate fewer people camping, for example, than simply visiting.

Interpretation "An educational activity which aims to reveal meaning and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply to communicate factual information." (Freeman Tilden) Interpretation is necessarily supported by a sound knowledge of facts and of techniques for presenting them.

Launch The beginning of a river trip, involving up to 36 passengers on a commercial trip or 15 participants on a noncommercial trip, from any point along the river. In almost all cases this point is Lees Ferry. The term does not generally refer to trips launched at Diamond Creek by the Hualapai company as the National Park Service does not restrict the date or number of launches from that location. Sometimes called a "put in".

Noncommercial Refers to boaters who are skilled river runners organizing river trips with their own crew, equipment, and supplies. On these trips, the participants share the responsibilities and cost of operation of the boats, along with meal preparation, and other camp duties. No fees are paid for guide services or are collected above the actual cost of the trip. Also termed "private."

Overnight Hikes Any hike below the rim of the Grand Canyon involving at least one night spent below the rim. Such hikes require a permit issued by the Backcountry Reservations Office of Grand Canyon National Park. River users camping elsewhere than on beaches are considered to be on an overnight hike and must have a permit.

Partial Trip Any river trip undertaken by a passenger or participant who joins the trip below Lees Ferry, or leaves a river trip above Diamond Creek.

Participants The people taking part in a noncommercial river trip. See "Noncommercial" for a description of their role in such a trip. One participant is designated the Trip Leader.

Passengers All people taking commercial river trips who are not members of the crew. They pay a set fee for the services of the company providing the trip.

Resource Protection Specifically refers to those provisions of the Colorado River Management Plan designed to mitigate human impact on the river corridor. These provisions include the restrictions on fires, the requirement that all human waste be removed from the canyon, and others.

Resources The interrelated components of an ecosystem including the plants, animals, and the soil upon which these depend. Includes the quality of these with emphasis on their natural condition, with little if any human effect evident. Also includes historical and cultural remains such as ruins, abandoned mining tools, and artifacts.

Resource Impact Noticeable evidence of recent human presence as revealed by the appearance, smell, behavior, etc., of components of the ecosystem including plants, animals, and soil. Also, evidence of recent human presence seen in the condition of historical or cultural resources such as ruins.

Riparian Zone The area from the river's edge to the highest point of the pre-Glen Canyon Dam silt-sand terraces and silt-sand eolian deposits.

River Corridor The Colorado River in Grand Canyon, its shore, and the adjacent portions of side canyons. Refers to parts of Grand Canyon National Park, Glen Canyon and Lake Mead National Recreation Areas, and parts of the Navajo, Havasupai, and Hualapai Reservations used by people running the Colorado River.

River Guide A member of the crew on a commercial river trip who has sufficient previous experience on whitewater rivers, including the Colorado River in Grand Canyon, to successfully negotiate the rapids as well as to provide information and interpretation for the visitor. See Plan, VI. D., for additional required qualifications.

River Mile Distances along the Colorado River in Grand Canyon as measured in miles beginning at Lees Ferry, Arizona.

River Runner General term referring to any person using a boat on the Colorado River. Includes river guides, trip leaders, participants, and passengers.

Sublet The unauthorized transfer of user days. A sublet exists when persons operate a trip with their own equipment, personnel, and insurance and pay a river concessioner a fee for its user days. See Appendix A for details.

Summer Season Defined by the Colorado River Management Plan as April 16th through October 15th. Previously defined generally as June 1st through August 31st.

Takeout The end of a river trip including the act of removing the boat from the river. The "takeout point" is the location at which this is done, such as Diamond Creek or Pierce Ferry. "Takeout" and "river takeout" are synonymous.

Trip Leader The individual in charge of a river trip. Commercial trip leaders must meet the qualifications for river guides and, in addition, must have worked as river guides on a least six trips through the Grand Canyon in the type of craft being used on the trip that the "leader" is to lead. Noncommercial trip leaders must have previous experience on the Colorado River in Grand Canyon and must attend a one-day training session.

Use Allocation For this plan it is the assignment of number of people and trip launches to commercial companies with concession permits and to non-commercial river runners.

User Days A unit of use equivalent to one person on the river for one day. When computing user days for commercial trips, crew members are not included in the calculations.

Visitor Any person using any part of the park, except employees of the park or its concessioners while carrying out their responsibilities.

Winter Season October 16th through April 15th.